University News

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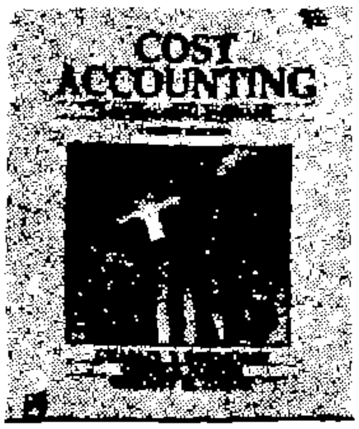
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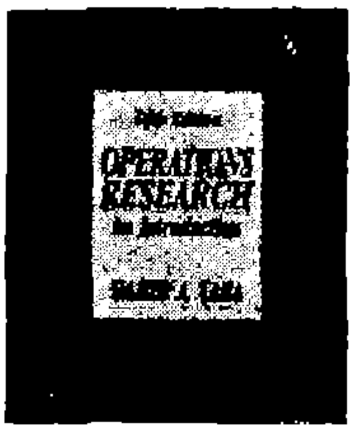
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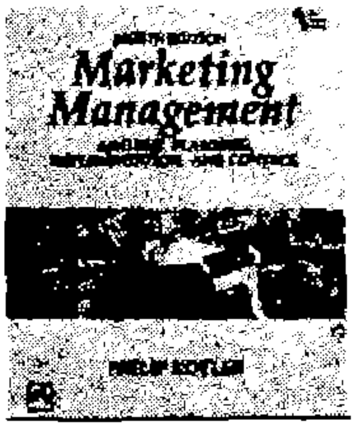
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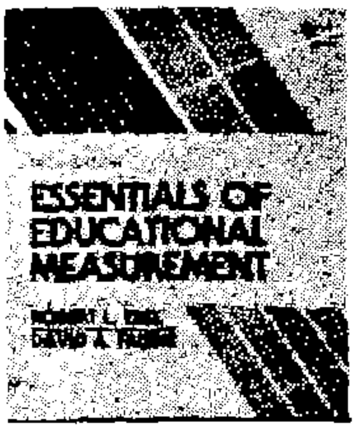
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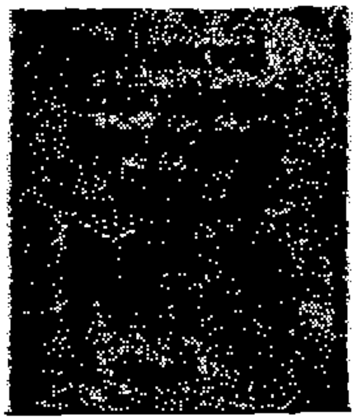
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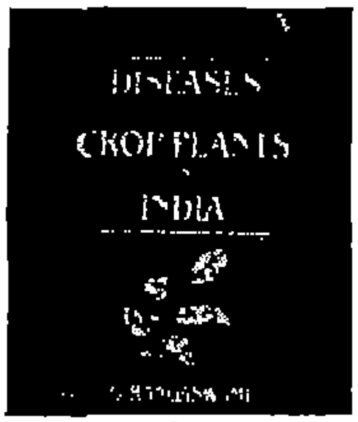
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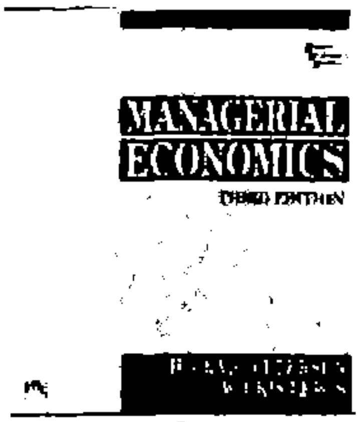
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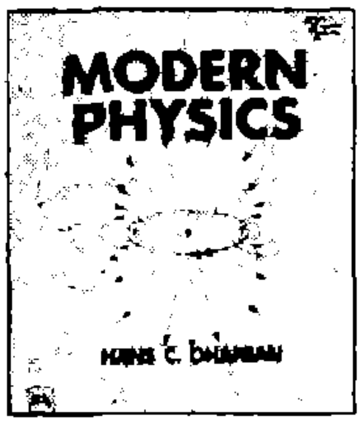
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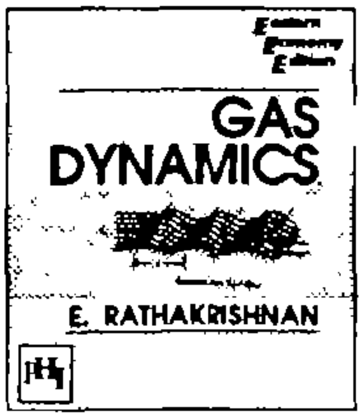
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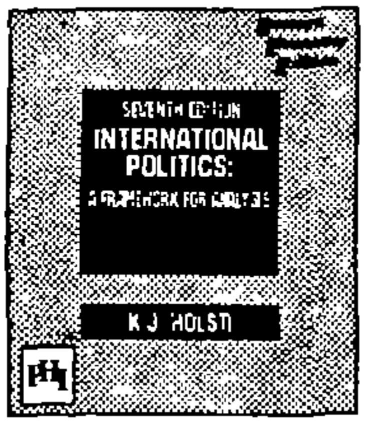
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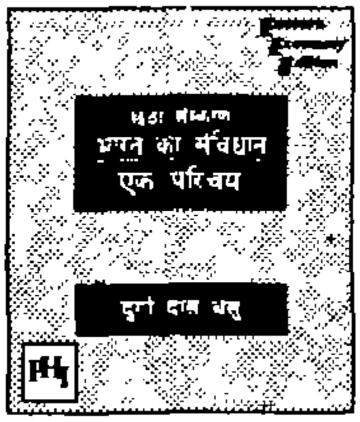
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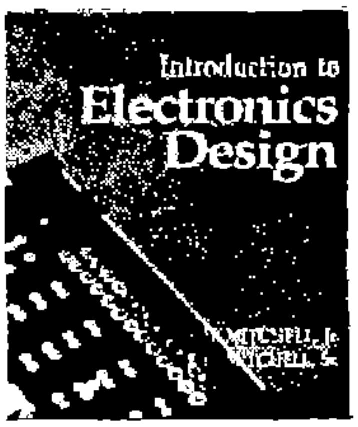
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Editor :
SUTINDER SINGH

Academic Incentives

The Manipal Experiment

K. Ramnarayan*
S. Gurumadhva Rao**
A Krishna Rao***

Manipal is a university town tucked away in the rocky hinterland of southwest India. In this educational complex of professional colleges are faculties of medicine, dentistry, pharmacy and nursing. In 1992, the management of this institution took a momentous policy decision to actually reward effective teaching and published work of the faculty members. The responsibility for working out the guidelines for the award system was given to the Department of Medical Education. The process of evolving guidelines went through many steps as indicated below :

1. Several meetings of the Department of Medical Education to review the literature on rewarding and recognising effective teaching and published research.
2. All faculty members of the institution were invited to give suggestions or ideas on this.
3. The suggestions and ideas of faculty members plus the pertinent literature on the topic were discussed in many more meetings of the Medical Education Department.
4. Finally the guidelines were drawn up; these guidelines have been in operation for the last three years.

Guidelines for Good Teacher Award

1. The award system is based entirely on the feedback given by the academically top fifty per cent of the students.
2. The feedback is obtained only after the students have completed their examinations; students are asked to evaluate the teachers who have taught them in the previous year(s) and are no longer teaching or evaluating them.
3. Each student is asked to identify 'good teachers' based on the following criteria.

   - The teacher was well organised
   - Gave clear explanation
   - Showed concern for the students
   - Had enthusiasm for teaching
   - Encouraged students to participate in classes
   - Made good use of teaching materials and aids
   - Stimulated the students' interest in the subject
   - Was accessible to students seeking advice
   - Assessed students' work fairly

Associate Dean & Professor of Pathology,

**Associate Dean & Professor of Pharmacology,*

***Head, Department of Medical Education and Emeritus Professor of Physiology, Kasturba Medical College, Manipal-576 119, Karnataka.*

4. Each student is asked to rank the teachers: rank I, rank II and rank III.
5. The students are assured that the information will never be used against them.
6. The feedback of the top fifty per cent of the class (based on the performance in the certifying examination in the subjects) is considered for tabulation.
7. For every rank I, a teacher is given 5 points; for every rank II, a teacher is given 3 points and for every rank III, a teacher is given 1 point. The total number of points for each teacher appearing in the student feedback is calculated.
8. The total number of awards every year is ten. It is distributed thus :

Pre-clinical (MBBS)	2 awards a year
Para-clinical (MBBS)	2 awards a year
Clinical (MBBS)	4 awards a year
Dental (BDS)	1 award a year
Pharmacy (B.Pharm)	1 award a year

9. The teachers who win the awards are given the awards at a public function (annual awards day). The teachers also receive a financial incentive equivalent to one month's basic pay.
10. Teachers who have won the award are not considered again for the award for two years.

Research Incentives

Research incentives to faculty members are given according to a point system which awards a certain number of points for every published article. The actual number of points is decided based on the type of article (such as full article, short article, case report) and the journal in which it is published (indexed or non-indexed).

The allotment of points for the various publications is as follows :

Nature of Journal	*Full article*	*Review article*	*Short article or Case report*	*Letter to the Editor*
Indexed	15	12	9	6
Non-Indexed	8	6	5	3
Other Scientific Journals	6	4	3	2

The total number of points for an article is divided equally by the total number of authors. When a staff member accumulated 20 points he/she is paid one month's basic pay.

The pecuniary rewards given (for teaching and research) are instituted as a separate fund in the name of the concerned faculty member. The faculty member can use this fund for academic activities such as purchase of books, attending conferences or membership of professional organisations.

Other Academic Incentives

1. A gold medal is awarded every year to the best research paper of the institution.
2. To encourage faculty members to present their academic work at conferences, the institution reimburses the travelling allowance and daily allowance of the faculty members who present papers at All India Conferences. Also, 50% of travel is borne by the institution if a faculty member presents a paper at an International Conference.
3. Monetary incentives are also given annually for preparation of slide tape programmes, video presentations, etc.

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REGISTRAR

Himachal Pradesh University
A Profile

Manju Lohumi*

Himachal Pradesh University, Shimla celebrates its Silver Jubilee on 22 July 1995.

Himachal Pradesh University was founded on 22 July, 1970. The University is located at Summer Hill, a suburb at the western end of Shimla at a distance of 4 Kms. from the town. University occupies an area of 200 acres and has a distinctive architectural style. The artistically designed buildings house the various teaching departments, laboratories and the library.

Historical Background

Prior to setting up of the University all the institutions of higher education in Himachal Pradesh were affiliated to Panjab University. However the programmes and policies of the Panjab University confined more to the needs of the plains than the hills. To meet the challenges posed by the typical characteristics of Himachal Pradesh, it was imperative to adopt programmes and policies suited to the state. This called for establishment of a separate university in the state. The then Chief Minister, Dr. Y.S. Parmar, in October, 1966 sought a special personal interview with the then President, Dr. Radhakrishnan and apprised him of the genuine need of the state for a separate university. The visiting team of UGC, in April, 1968 observed that a multi-faculty university be established at an early date. On the basis of the report of the visiting Committee, the UGC recommended that two university centres be developed, one at Solan for Agriculture and the other at Shimla for Social Sciences, Humanities and the basic Sciences. The bill received the assent of the President of India on 13th July, 1970 and became the Himachal Pradesh University Act, 1970. The Act came into force on 22nd July, 1970 and on that auspicious day the Himachal Pradesh University came into being with its jurisdiction coterminous with the boundaries of the state.

It was to be a multi-faculty university, with the difference that the faculty of Agriculture, organised on the pattern of an agricultural university with all functional and financial autonomy was to be a part of the University. Thus, besides an administrative unit the University had three main components (a) Agricultural Complex, (b) the Postgraduate Centre, and (c) the affiliated colleges.

Mr. R.M. Sharma, Principal, Govt. College, Shimla on the basis of seniority was appointed the first Registrar of the University and Dr. R.K. Singh joined as the first Vice Chancellor of the University on 1 January, 1971. Till then, the Chancellor, Lieutenant General K. Bhadur Singh had looked after the functions of the Vice Chancellor.

The Agricultural Complex of the University consisted of the College of Agriculture, Palampur, various research centres and extension centres of the Punjab Agricultural University located in the integrated area of undivided Punjab State in July, 1971, the Agriculture College and Research Institute, Solan and 21 research farms scattered all over the state along with the research unit of the state forest department.

Admission to the postgraduate classes in English, Economics, Political Science, Hindi, Mathematics, Physics and Chemistry for the academic session 1970-71 were made at postgraduate centre in July, 1970.

All the degree colleges and other institutions located in Himachal Pradesh were affiliated to the Himachal Pradesh University from 22 July, 1970.

University Departments

At the time of the formation of University the various departments were in the campus. The five faculties in the campus were those of Arts, Science, Education, Law, and Commerce and Business Administration. These five faculties had 12 departments viz. English, Hindi, History, Economics, Political Science, Mathematics, Chemistry, Physics, Agro-Economics, Education, Law, and Business Administration. The two faculties of Medical Science and Agriculture and Forestry were outside the Campus.

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* *Assistant Professor, International Centre for Distance Education and Open Learning, H.P. University, Shimla-171 005.*

During the last 25 years the number of departments has doubled and the eight faculties have 28 departments in the university campus. The University expanded its teaching departments and research through the establishment of following new departments.

1. Sanskrit (1972)
2. Music (1973)
3. Bio-sciences (1973)
4. Psychology (1974)
5. Commerce (1976)
6. European and Modern Languages
   - (i) German and Russian (1976)
   - (ii) French (1977)
7. Yoga Studies (1981)
8. Journalism and Mass Communication (1986)
9. Bhoti Language (1986)
10. Public Administration (1987)
11. Computer Science (1987)
12. Geography (1989)
13. Sociology (1989)
14. Physical Education (1993)
15. Performing Arts
16. Visual Arts

Deptt. of Music bifurcated in 1989 (UGL) 1994 Separate Deptts. (PGL)

17. Biotechnology (1995)
18. Vocational Studies (1995)

The department of Agro-economics shifted to Agriculture University in 1978 with its establishment. In 1978 the department of Commerce was merged with Business Administration. In 1984 the faculty of Arts was bifurcated into Social Sciences and Languages, Humanities Fine Arts and as such the number of faculties rose to 6. In 1988 the faculty of Languages, Humanities & Fine Arts was again bifurcated into two faculties viz., Languages and Performing & Visual Arts raising the number of faculties to 7. In 1989 the Commerce and Management Studies became two departments. The department of Music was bifurcated into two departments i.e., Department of Performing Arts and Department of Visual Arts at undergraduate level from the session 1988-89 and at postgraduate level from 1994-95.

From 1995-96 session the Department of Management Studies is being converted into International Institute of Management Studies and Institute of Vocational Studies.

Three faculties outside University Campus are Medical, Ayurveda and Engineering and Technology. Thus the total number of faculties in H.P. University is now eleven.

Under the Medical faculty there is an Indira Gandhi Medical College, Shimla, two dental colleges one each at Shimla and Sunder Nagar and Indus College of Nursing. The faculty of Ayurved has a Govt Ayurvedic College at Paprola, while the faculty of Engineering & Technology has a Regional College of Engineering at Hamirpur.

Institutions Maintained by the University

H.P. University has not confined its postgraduate teaching and research to the university departments only. Some of the postgraduate teaching and research in specialised areas is conducted in its recognised institutions. These institutions are either maintained/affiliated to the university. One such Regional Postgraduate centre is situated at Dharamsala (Kangra).

Agro-economic Research Centre

Agro-economic Research Centre of Himachal Pradesh University was established in January, 1973 by Ministry of Agriculture, GOI to carry out research and investigation in the field of agricultural economics in Himachal Pradesh and its adjoining hilly areas. The main functions assigned to the centre are :

- To make a study of change in rural economy by means of survey of a number of selected villages each year and resurvey of the same group of villages at an interval of five years;
- To conduct adhoc investigations into problems of interest to the Ministry of Agriculture, Govt. of India; and
- To give technical advice to the Government of India and concerned state government on such issues, as with mutual agreement, may be referred to the centre.

In consonance with these broad objectives the Centre has brought out a number of studies for the benefit of Govt. as well as farmers. These studies have covered a vide variety of fields, topics and objectives.

By the end of March, 1993 more than 110 research studies had been published by the Centre on various aspects like fruit and crops production, livestock production, forest production, irrigation and rural development, marketing of different farm products, evaluation of various development programmes, input use structure, etc.

HPU Evening College

The Evening College is the oldest wing of H.P. University. Ever since its inception in 1962 (under Panjab University initially), the Evening College has catered to the needs and aspirations of working population not only of Shimla but also of some of the nearby areas. This college offers them opportunities to improve their educational qualifications and career prospects. In addition to Arts & Commerce courses at undergraduate level, the H.P.U. Evening College is also providing facilities for postgraduate courses in some subjects. From 1995 Bachelor of Business Administration (BBA) programme has been started in this college with 60 seats.

Academic Staff College

The Academic Staff College of Himachal Pradesh University came into being in June, 1989. In accordance with the guidelines of Academic Staff Orientation Scheme of UGC, the college organised its first orientation programme in September, 1989. By the end of March, 1995, it had conducted twenty three (23) orientation programmes. The programmes attempted to inculcate certain teaching and research skills among the college and university teachers. They also made them realise their role in the society and achieve self sufficiency for meeting the challenges of education in the modern world.

The second type of programmes organised by the Staff Colleges were refresher courses. Through these programmes the senior lecturers were given exposure to the developments taking place in their subjects and the utility of tests and self evaluation for assessing their capacities for effectively performing their role. By the end of March, 1995 it had organised twenty one (21) refresher courses and one seminar for Principals.

In all 1061 teachers have participated in forty five (45) programmes.

Directorate of Correspondence Courses

With the creation of H.P. University, there was a tremendous pressure from every quarter of the state to grant permission for postgraduate studies to the various affiliated colleges of the Pradesh. Due to limitations of resources and inadequacy of facilities and infrastructure as well as their possible fallout on the standards of higher education such permission could not be granted. As a way out, the university conceived a programme of education through correspondence courses to meet the growing demands of higher education. The programme also intended to expand the educational plans and enlarge the opportunities for higher education at the minimum cost for those who had the will but not the means to realise it. Hence the Directorate of Correspondence Courses was established in July, 1971. Himachal Pradesh University was the first in the country to start postgraduate courses in different subjects viz. English, Economics, Political Science, History, Hindi and Sanskrit through correspondence. It has the distinction of starting professional courses viz. M.Ed. in the first year of its existence. The H.P University has played a pioneering role in nurturing in its fold the formal and non-formal channels right since its inception. Originally it was planned to confine the activities of the Directorate of Correspondence Courses to the state of Himachal pradesh, but later on, the scope was extended for the students of other states also. As many as 14,540 students applied for admission to various classes in the first session. This number was reduced to 10416 on final checking while 6177 students appeared in the final examination.

During the session 1994-95 about 24,000 students were enrolled in different courses. Personal Contact Programmes evoked keen interest among the students. These are arranged at nine places for durations varying from seven to fifteen days, in each semester. These programmes are compulsory for M.Com and M.Ed. classes. To enrich quality of instructions at these contact programmes, the teachers of eminence in their respective fields are invited to deliver special lectures, and conduct seminars and preside over the debates and discussions.

The information cum guidance centres are functioning at Delhi and Calcutta.

As a focus of academic pursuits of the students and teachers, the library with its modest collection of books and a few regular journals, both of current and scholastic interests, continues to function effectively. In order to cater to the educational needs of the people living in the tribal belt of Himachal Pradesh, the Directorate of Correspondence Courses has decided to set up spot admission, personal contact programme and examination centre at Pangi and Bharmaur. From the session 1995-96 the Directorate of Correspondence

Courses (DCC) has been bestowed with the status of International Centre for Distance Education & Open Learning (ICDEOL).

Affiliated Institutions

When H.P. University was established in 1970, thirty one educational institutions were affiliated to it (Undergraduate Govt. Colleges 11, Non Govt. Undergraduate Colleges 05, Colleges of Education 03, College of Art 01, State Institute of Languages 01, Oriental institutions 08, University Evening College 01, Medical College 01). The Medical College was under the direct control of the Government. Today in 1995 the number of affiliated institutions has risen to 72. These affiliated institutions include 21 Govt. Colleges; 20 Non-Govt degree colleges; College of Education Dharamsala; Central Research Institute, Kasauli; Indira Gandhi Medical College, Shimla; Govt. Ayurvedic College, Paprola; Indus College of Nursing, Shimla; H.P. Dental College, Sundernagar; H.P. Dental College, Shimla; Regional Engineering College, Hamirpur; five autonomous Colleges; 19 Sanskrit Pathshalas and Colleges.

Development of colleges which are responsible in a major way for undergraduate education and to a great extent even for postgraduate education is an important area in higher education. As a result of affiliating policy of Himachal Pradesh University, many more degree colleges have been opened in rural areas and small towns in private sector.

Central Research Institute, Kasauli imparts instructions in B.Sc., M.Sc., M.Phil. and Ph.D. in Microbiology.

Facilities and Services

Library : H.P.U. library was established on February 4, 1972. In a period of 23 years there has been manifold increase in the size of its collection and demand on its services. Its collection has grown from a meagre 15,000 to more than 1,65,681 books. The library subscribes to 800 foreign and Indian journals costing more than seventeen lacs of Rupees annually. The new six storeyed library building has cost about 60 lacs and covers an area of 600 sq. metres. The building has a capacity of accommodating two lacs volumes and 500 readers at a time.

Primary Health Centre: Primary Health Centre provides medical aid & facilities to the residents and students of the University on the campus.

Hostels, Guest House & Residence: Apart from a 27-room well furnished Guest House facility, the University maintains a chain of 7 hostels for male and 4 for female students with accommodation for about 1200 students. Residential facility for 66 members of the faculty and for about 60 members of non-teaching staff is also available on the campus.

Sports Complex: Topographical constraints and paucity of space notwithstanding, the University has a reasonably good sports complex. It comprises a play ground for outdoor games with accommodation underneath for teams participating in various sports meets. Facilities for indoor games are also available in the campus.

In spite of topographical difficulties and financial constraints, the University has grown steadily and has been conferred "A Grade Status" by the University Grants Commission in 1989-90. This is a recognition of the standard acquired by the University in respect of syllabi, ideal teacher-taught ratio, adequate infrastructural facilities and sustained growth and development.

From location point of view Himachal Pradesh University occupies the highest position in the country, let us hope it does so in scholarship and excellence also.

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Student-Teacher Interaction and Counselling in Engineering Colleges

Geeta R. Kulkarni*

Introduction

In our society a child is put into school from the age of 3 years onwards. So from the very tender age of 3 years the child is in constant contact with the teacher apart from the parents and the family members. Gradually, the time a child spends as student in school in the teacher's company increases. The child starts considering the teacher as someone with super power who will hold his/her hand in any crisis. Teacher is someone whom the child can rely on for emotional support, encouragement, guidance and counselling. Women teachers are more effective because women have qualities like patience, warmth, tolerance, etc which gives them an additional dimension for interaction with students.

After schooling is over the students enter new phase of their educational life i.e. college life. Especially the students who come to engineering colleges for technical education often have to stay in hostels away from their parents and, the course they have to study is different from whatever they had been studying till then. They feel homesick and overloaded with increased number of theory subjects, practical works, assignments, class tests, etc. Therefore teachers working in technical institutions are often called upon to guide, have better interaction with and counsel their students in several areas leading to an all round development of students. It is also required of them to deal with students' problems and arrive at enduring solutions and to ensure a healthy climate in the institution for a harmonious and integrated personality development of students.

Student-Teacher Interaction and Counselling

Student-Teacher Interaction

Student-Teacher interaction occurs during :

1. Classroom teaching, practical hours;
2. College functions and extra-curricular activities; and
3. Within the institute and outside the college campus, wherever guidance is required.

Counselling

It is the process of enabling the individual to know himself and his present and possible future situation in order that the student may make substantial contribution to society and solve his own problems through face to face personal interaction with the counsellor. Women teachers as counsellors are more successful because students confide and show more faith in women counsellors.

Counselling is not just giving information and advice, suggestions and recommendations when requested for. The focus is on the assistance provided to an individual to know himself/herself and work towards his/her own personal growth. Consider an example where a hosteller student X could never get along with her room partner and would fight with her on very trivial matters. With requested counselling the student X's problem was found as inferiority complex within her and she used to behave so in order to attract attention. With counselling, advice, and suggestions her problem was resolved.

The objectives of counselling students in the educational context, can, therefore, be formulated as follows:

- Achieve positive mental health;
- Resolve their problems;
- Improve their personal effectiveness; and
- Maximise their individual freedom to choose and act within the environmental constraints.

Student-Teacher Interaction

Student-Teacher Interaction can be diagrammatically shown as follows:

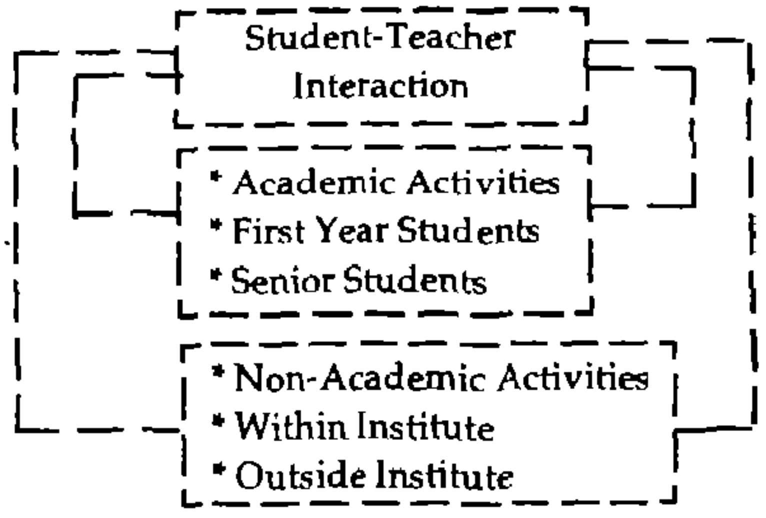

Figure 1 : Student-Teacher Interaction

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Interaction Based on Academic Activities

During the process of classroom teaching or the practicals the interaction of the teachers and the students is a formal work. The teacher should as far as possible, remember the students by name. Teaching should not be a one way communication from the teacher's side; participation from students' side should also be encouraged, only then interaction with the students will be fruitful. The teacher should be concerned with the optimum educational achievements of all categories of students, like catering to educational needs of special students after the classroom lectures.

Interaction with First Year Students

A first year student who joins Engineering course faces problems like a completely new environment in a new place, especially for those who reside in hostel. They have to adapt to different type of food, new friends, new language, being away from parents' guidance, and new type of academic course with increased number of theory subjects, practicals, workshops, etc. Teachers through their interaction can guide these new students to adapt to new surroundings and new course pattern by providing them emotional and moral support, guiding them, to follow the Institute's discipline, appropriate pattern in attendance and study habits.

Interaction with Senior Students

Students studying in final year need guidance from teachers on future avenues open to them like, job opportunities, courses available for higher studies within and outside the country, competitive examinations, extra coaching, information about entrepreneurship, facing interviews, group discussions, etc. Good student-teacher interaction in this regard will motivate students to acquire abilities and try for better placement in life.

Interaction Based on Non Academic Activities

Every institute has annual social gatherings, weekly co-curricular activities, youth festivals, college elections, etc to encourage all round personality development of students. In such activities the teacher-student interaction is informal. The role of a teacher is that of a guide and a friend. The teacher helps them gain self confidence, safe direction, develop desirable personal and social qualities. He also helps students to be trained as leaders and develop fellowship qualities — a spirit of team work.

Interaction Within the Institute

This interaction can be in the form of guidance provided to students to profitably spend their leisure time. These include activities such as games, sports, developing creativity, and optimal utilisation of institutional resourses, such as library, laboratories, workshops etc. Monitoring attendance and students' performance in class test helps the teacher to know weak students or encourage good students to make to the merit list. Observing the students in case they were indulging in some unhealthy habits or involved in bad practices enables teachers to prevent them from doing so.

Interaction Outside the Institute

This type of interaction occurs when the teacher accompanies the students to study tours, inter-college competitions like sports, cultural activities, technical contests, etc projects and conventions. In such situations, though the authority is formal, the relationship is informal. The teachers get together with the students and thus a better interaction with the students is made possible.

The Teacher's Grid

It has been recognised by educational institutes that concern for teaching i.e "task" and consideration for students i.e. "relationship" are two important dimensions of a teacher's behaviour. Concern for teaching, refers to a teacher's endeavours to impart necessary knowledge, skills, attitudes. Channels of communication, methods of procedure, etc for academic growth. On the other hand consideration for student refers to behaviour indicative of friendship, mutual trust, respect and warmth in the relationship between the teacher and his/her students.

The teacher's grid suggested in this paper puts emphasis on teaching styles and suggests that teaching styles vary considerably from teacher to teacher. If we plot concern for teaching and consideration for students on two separate axis, then this will result in the development of four quadrants to illustrate combination of teacher-student interaction. Concern for teach-

HIGH		
Consideration for Students (Relationship)	HIGH CONSIDERATION AND LOW TEACHING III	HIGH TEACHING AND HIGH CONSIDERATION II
	LOW TEACHING AND LOW CONSIDERATION IV	HIGH TEACHING AND LOW CONSIDERATION I
	LOW	HIGH

Concern for Teaching (Task)

Figure 2 : The Teachers' Grid

ing becomes more important for the teacher as rating advances on the horizontal scale, and, as one advances on the vertical scale, concern for students becomes maximum.

Fourth quadrant in this grid indicates that the interaction will be very low as the grid indicates low concern for teaching and low consideration for students. This type of interaction comes into effect with mature Ph.D students, who need very little guidance or socio-emotional support.

In third quadrant, teachers show high consideration for student and low concern for teaching which indicates teacher-student interaction appropriate for working with senior undergraduates or postgraduate students. In this type of interaction the grievances and complaints from students are low.

Second quadrant of the grid indicates high concern for teaching and high consideration for students (good relationships) and this is the most effective, best and desirable teacher-student interaction. Teachers will have more influence on students if they have good relationship with them, if they are liked, respected and trusted. Also high concern for teaching means highly structured, programmed teaching and gives the teacher more influence than teaching that is vague, unprogrammed and unstructured.

First quadrant stresses on high teaching task and low consideration for student relationship. This sort of teacher-student interaction is seen in junior students characterized by structured behaviour on the part of the teacher as he/she reinforces appropriate patterns in attendance, study habits and discipline.

Counselling Strategies

Counselling is assistance given to students to find solutions to their own specific problems. Students encounter a variety of problems of varying dimensions and magnitude. A clear understanding of the problem and its analysis is required for taking proper steps to find a solution and reducing adverse affects.

The identification of the problem is the first step in counselling. Teachers are generally concerned about problems which affect the academic performance and personality development of the students. In initiating action in this regard, two factors are given particular attention i.e. impact of the problem on the entire class and periodicity of occurrence of the problem.

The problem can be identified by psychological tests or teachers may use their observations when they are with students e.g. in class rooms, extra curricular activities (Fig. 3).

Conclusion

To conclude we can say that student-teacher interaction and counselling is one of the most vital needs of technical institutes today. This interaction calls for extra efforts and dedication from teachers' side which can be done more efficiently and effectively by women teachers. Guidance and counselling is centered round the needs and aspirations of students with focus on helping them to realise their full potentialities and enable them to make optimum contribution to the growth of the society.

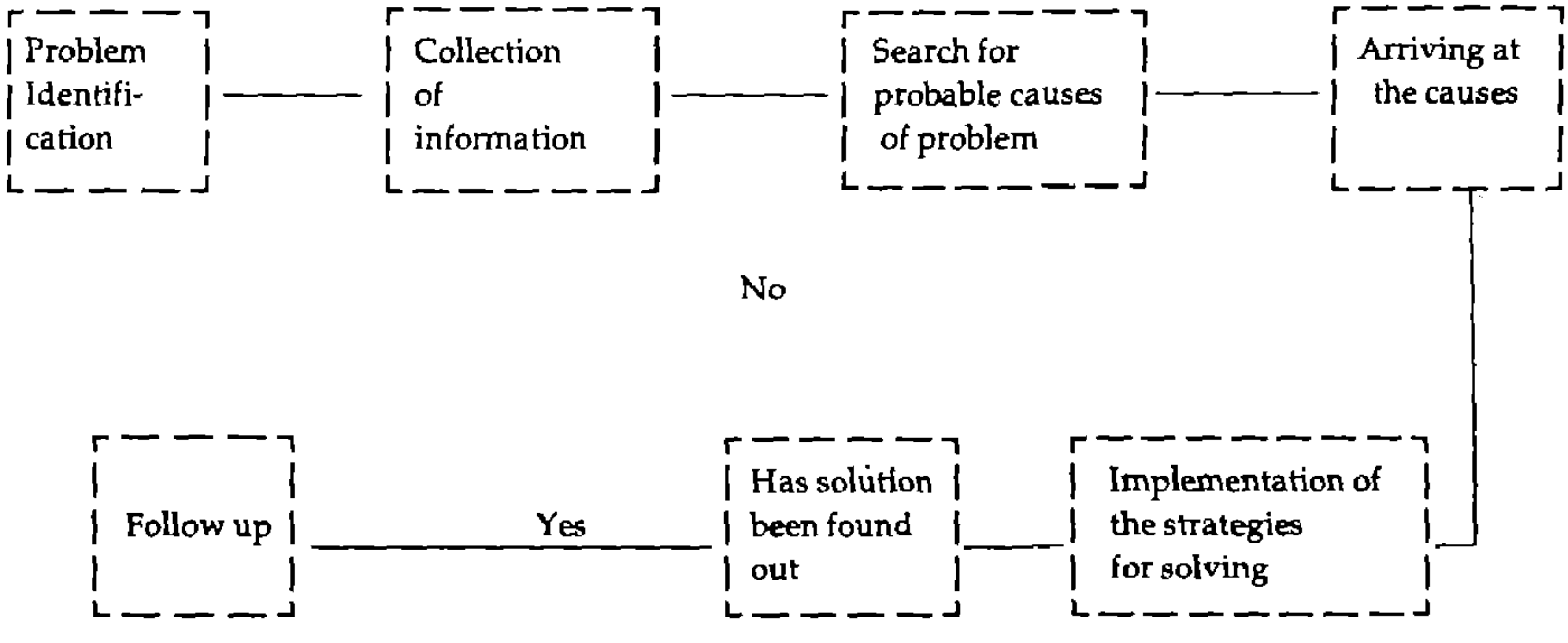
Problem Identification
Collection of information
Search for probable causes of problem
Arriving at the causes
No
Follow up
Yes
Has solution been found out
Implementation of the strategies for solving

Figure 3 : Steps in Problem Solving

Increasing Access to Open Education

A Case Study

E. Chandraiah*

The benefits and facilities of Open Education System (OES) were not realised until the growing population forced educational organisations to explore new avenues for providing higher education on a large scale to accommodate growing demand for education. The benefits, such as accessibility to higher education for a large segment of population with off campus system supported by multimedia communication, flexibility with regard to the eligibility for enrolment, choice of subjects, methods of learning and cost effectiveness have contributed to the development of open education system. The challenge of 21st century is how to provide access to higher education to the large number of growing population.

In view of the present rigid entry requirements to formal courses restricting the access of a large segment of people to technical and non-technical (or general) education, the open education system is the only alternative to accommodate the growing demand for higher education.

Open education is an extension of distance education with a package of student support services. Open education is learner oriented and it enables the learner to learn at his own pace and place.

Distance education began in India as a movement of home study in the name of correspondence courses in 1960s, evolved into a larger concept of distance education in 1970s, and opened out to open education system in the early 1980s with the establishment of Dr. B.R Ambedkar Open University (formerly known as A.P. Open University), for the benefit of those who could not, for one reason or the other, continue their education in regular or conventional university or college.

The success of Dr. B.R. Ambedkar Open University, paved the way for the establishment of other open universities in the country. In India at present, there are 7 open universities out of which four are functional. They are : (i) Dr. B.R. Ambedkar Open University (A.P), (ii) Indira Gandhi National Open University (New Delhi), (iii) Yashwantrao Chavan Maharashtra Open University (Maharashtra), and (iv) Kota Open University (Rajasthan). Nalanda Open University (Bihar), Raja Bhoj Open University (MP) and Dr. B.R. Ambedkar Open University (Gujarat) are yet to take off. Two more open Universities are likely to be started in the states of Tamilnadu and Karnataka.

Dr. B.R. Ambedkar Open University had a student enrolment of around 60,000 in the academic year 1993-94 with a network of 92 study centres spread over the entire state of Andhra Pradesh. Eight more study centres are proposed to be added to the network. The university follows a multimedia approach in the instructional methodology such as, printed self instructional material, radio lessons, audio video lessons, face to face contact cum counselling classes, etc. Printed course material is the most prominent of all these modes of instruction. The other modes are largely supplementary to the print medium and designed to meet the requirements of distance learners.

It is now pertinent to analyse and evaluate the growth and development of Dr. B.R. Ambedkar Open University (Dr. BRAOU) in terms of providing enhanced access to higher education and studying the problems associated with students in open education system. The data pertaining to the students enrolment, collected and compiled from university records, are presented in Table 1. The information about problems associated with students in open education system is collected on the basis of an interview with around 200 students from 10 selected study centres and discussions with concerned authorities at the university Head Office in Hyderabad.

The enrolment of students in undergraduate programmes increased to 59, 796 in 1993-94 from 6231 in 1983-84 which is more than 9 times over a period of 10 years. Around 71,000 candidates appeared for Eligibility Test for the academic year 1995-96. This is indicative of the wide scale acceptability of the University since it offers a second chance to thousands of people to continue their education and improve their capabilities and knowledge without leaving their jobs and daily routine.

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The analysis of the table reveals that :

i) Dr. B.R. Ambedkar Open University has been able to provide access to higher education to a very broad cross-section of the people.

ii) The enrolment of students from urban areas is around 70 per cent and from rural areas around 30 per cent.

iii) About 30 per cent of total enrolment is of women of which a good number are housewives. The flexibility in the system is convenient and a great boon to the housewives.

iv) The courses offered are more or less the same as offered by conventional/regular universities. In addition to the conventional courses, the University should offer socially relevant and vocational/job oriented courses like courses in Technology, Electronics, Computer Application, Agro-based industry courses, B.Ed., LLB., etc.

However, it is important to note that the university is still not able to provide access to higher education to all the disadvantaged rural people, in spite of the fact that an overwhelming majority (about 70 per cent) of our population is living in rural areas. It is easier to transmit knowledge to the people in remote areas by organising mobile study centres, rather than transport people to the place of knowledge. This is much in tune with the University's avowed objective "education at your doorstep".

Problems

Increasing access to open education does not necessarily mean that every thing is good with open education. The open education is facing several difficulties like the following :

1. Most of the students complain about delay in receipt of course material, non-receipt of course material, receipt of wrong material, receipt of wrong memos, receipt of memos with 'A' (Absent) for some papers though the candidate may have appeared for all papers, delay in replies to letters and sometimes no reply at all, delay in publication of results, etc. There were instances of students not being able to take their examinations for non-receipt of course material before the commencement of examinations.

2. Most of the counsellors were not engaging the allotted sessions per paper in an academic year.

3. Around ninety five per cent of the selected sample students responded that they were not availing of the radio, audio and video lessons made available through study centres. Various reasons cited in support of non-use were: some radio, audio and video lessons were not interesting, some are not audible, and some and outdated, etc. Another reason was that All India Radio, Hyderabad-B broadcasting radio lessons did not reach all the corners of the state.

4. The syllabus for first year foundation course in Science and Technology consists of Physics, Chemistry, Zoology and Botany with respective orientation. One counsellor who is expert in one of the above mentioned areas could not do justice to all the subjects. Students demanded three or four specialised counsellors to deal with four specialised parts of the course. The course is heterogeneous with a bias of individual subjects orientation. Instead, it should be more general in nature with current trends.

5. Lack of coordination between universities and directorates within the university was yet another problem faced by distance education in India in general as a whole. Dr. B.R. Ambedkar Open University is no exception.

In spite of the problems mentioned above, the open education systèm has vast potential for growth in India as it is cost effective and convenient to the distance learner.

Some Suggestions

1. Despatch of course material, conduct of examinations and publication of results have been major areas of concern to the students and observers. Though pioneering efforts of this kind are always faced with difficulties, the university has the responsibility of finding ways and means for developing efficient, economic and satisfactory delivery of reading material and conduct of examinations.

With the advent of computers and electronic media, the communication revolution is fast changing the nature of work and the trend is towards open education system. To offer better and prompt information services, there is urgent need for the open university to develop a computer/telephone network connecting headquarters with all the study centres spread over entire Andhra Pradesh.

A system of continuous monitoring of the study centres is essential to feed the university with day to day problems and the progress in sticking to schedule.

For this purpose, a separate Students Affairs Board (SAB) be established to look into the various problems of students and study centres as a whole and report the same to the concerned authorities with its concrete suggestions to solve the problems.

2. Most of the audio video lessons presented were produced quite some time back and they had their own pilot launching. In the light of the expansion and quality of open education system, these lessons are required to be revised, updated, and improved with realistic recordings, coupled with interviews with resource persons, dramatisation, dialogue, music, etc, to make the audio video lessons interesting. This requires onerous devotion and accountability on the part of the core academic staff in planning, producing and presenting audio video programmes. Further, a separate channel on Radio and Television for exclusive use by the educational institutions with major chunk of time for open university programmes is highly desirable.

3. Research and Training in Open Education System (RTOES), at national and international level, should be made a regular feature. The core academic staff in open university require specialised skills, and therefore, the facilities for advanced foreign training (AFT) in open education system be provided to the staff.

Quality in open education system cannot be achieved and maintained without evaluation and monitoring of the system. Evaluation is an integral part of the systems approach. It will be a progressive feature of open university evaluation of different functionaries/Directorates in the system taken place at regular intervals. The work of various functionaries/Directorates in the system right from course planning, printing, and despatch of course material to publication of results in often interdependent. The delay at one stage affects the sequence of functions. Further, the evaluation made should be used for finding a solution to the problem and followed up with action and continuous monitoring. This is possible only when there is inner accountability on the part of officers responsible in the system.

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Table 1 — Classified Data of Active Students : 1993-94

	Undergraduate programmes (B.A., B.Com. & B.Sc.)			M.A. (Pub. Admn.)	M.A. (Pol Sci.)	M.Sc. (Maths)	M.B.A.	B.L.I.Sc.	B.P.R*.	C.P.F.N.**
	Ist year	II year	III year							
Male	21198	11253	5269	996	938	1145	826	233	248	37
Female	8085	5175	2950	389	405	216	75	121	64	173
Total	29283	16428	8219	1385	1343	1361	901	354	312	210
Urban 70%	20498	11500	5753	970	940	953	632	238	264	182
Rural 30%	8785	4928	2466	415	403	408	269	116	48	28
Total	29283	16428	8219	1385	1343	1361	901	354	312	210
Telugu-Medium	24058	13475	6714	-	-	-	-	-	-	-
English-Medium	5225	2953	1505	-	-	1351	901	-	-	-
S.C.	4188	2084	821	164	126	13	99	29	26	24
S.T.	673	306	121	16	13	-	9	1	2	2
B.C.(A)	1933	1032	514	98	87	55	54	12	11	12
B.C.(B)	5136	2697	1495	239	214	192	87	51	43	23
B.C.(C)	598	275	146	29	39	36	5	9	7	9
B.C.(D)	3316	1861	907	147	176	133	70	45	32	23
O.C.	13413	8161	4210	692	688	932	550	207	188	117
Prisoners	26	12	5	-	-	-	-	-	-	-
Others (PH,NSS, Sports, NCC & Ex-Servicemen)	-	-	-	-	-	27	1	2	-	-
Total	29283	16428	8219	1385	1343	1361	901	354	312	210

* Bachelor Degree in Public Relations

** Certificate Programme in Food and Nutrition.

A Profit Making Enterprise

Prof. S.C. Gupte, Former Vice Chancellor, University of Pune, delivered the Convocation Address at the 18th convocation of the Mahatma Phule Krishi Vidyapeeth, Rahuri, Dist. Ahmednagar. He said, "It is not enough that the production should increase. But it is more important that even with the increased production agriculture should become a profit-making enterprise. And this needs to be considered seriously. Agriculture becomes economically viable and profitable when the produce has a necessary market and the distribution in the market is also more rational." Excerpts

Education is essentially a medium for transmission of accumulated knowledge from one generation to the next. The education imparted in schools and colleges is mainly of this type. However, in higher education research has a more significant role because it contributes to the growth of knowledge; and further it is through research that solutions are found to various problems. If the society has to progress in right direction, it is imperative that all sections of the society must have easy access to education. If some sections of the society are deprived of education, it will be an impediment in the path of progress. Mahatma Phule had realised this 150 years ago and, therefore, he insisted on making education available to such sections of the society who were deprived of it. Even today it is a matter of great concern that about 50% of our population is illiterate. We are all aware of this. Access to primary and secondary education for all sections of the society is an important prerequisite for development.

Similarly, in the field of higher education, it is necessary to provide education which will be useful to satisfy various needs of the society. Accordingly, it is necessary to establish colleges and universities for higher studies in various faculties such as agriculture, medicine, and engineering. Since agricultural science is a subject related to basic needs of the society, an agricultural university is not to be established only with a view to develop or improve our agriculture but it is also essential for the process of social and economic development. In this regard, it is also to be noted that about 70% of our population directly depends upon agriculture for sustenance. This 70% population lives in the rural areas outside the cities. It is very necessary that knowledge regarding agriculture emanating from the agricultural colleges and agricultural universities must reach this 70% population.

Therefore, it will be proper to include the agricultural science component at the school level instead of confining it only to colleges and universities. Therefore, it is necessary that Mahatma Jyotiba Phule's suggestion to establish agricultural schools should be implemented. However, if it is not possible to establish such agricultural schools in view of financial constraints, it is necessary that the agricultural science component should at least be introduced in the secondary school education to some extent. It is generally believed today that education should become more oriented towards needs of the society and to some extent efforts are being made in that direction. This is evident from the Kothari Commission Report, the New Education Policy and the introduction of vocational education at national level. Basically, education must be imparted with a view to satisfy the needs of the society.

Geographically, our country has so much diversity. The snow-clad Himalayan ranges of the north, the contiguous fertile plains of Indo-Gangetic basins, the plateaus to the south, the Rann of Kutch and sands of the Rajasthan desert in the west, the humid and flood-prone regions of Bengal and Assam in the east, the area of continental climatic conditions in the southern plateaus in Vidarbha, Andhra and Tamil Nadu, all reflect this diversity. Even within Maharashtra, we have the Konkan low lands receiving heavy rainfall, the drought-prone area of Madhya Maharashtra as against the significantly different climatic area of Vidarbha and Marathwada. The agricultural problems of these climatically different regions are naturally of different types. It was, therefore, a very appropriate decision to establish separate agricultural universities for each of these regions; and the good effects of this decision are becoming more evident in recent times.

Our country receives rainfall from the monsoons and its regional distribution is extremely uneven. This leads to increasing complexity in the problems faced by the various regions. When monsoon is described, its variability and uncertainty are always emphasized. A region may receive heavy rainfall in one year while it may receive very little in the very next year.

Similarly, in the same year some areas suffer from heavy rainfall whereas others have to face the drought conditions. Because of these characteristics of monsoon the problem of water is most serious among the problems related to our agriculture. Optimum use of water available in nature and at the same time to maintain the balance of the available water resources are both very important aspects in this regard. Therefore, it is necessary that we have to emphasize on proper use of water and conservation of water resources in our agricultural endeavour. Water management, therefore, is a very important subject of study for our agricultural universities.

Fortunately, during the last few years, in Maharashtra and specially in the area under the jurisdiction of Mahatma Phule Agricultural University, a number of encouraging experiments and projects have been completed in this regard. The project developed by Shri Annasaheb Hajare at Ralegan Siddhi, the Pani Panchayat Project carried out by Shri Vilasrao Salunke and collection and percolation of water experiment of the Krishi Pratisthan carried out by Dr. Appasaheb Pawar are examples of such useful and successful efforts. It is indeed a matter of great satisfaction that our agricultural universities are also aware of this aspect and necessary research is being carried out in the field of water management at these universities. We can learn much in this regard from a country like Israel and the techniques developed there can be used in our agriculture, of course with necessary changes required by our conditions. The objective of water management is not simply to increase the production but it is more meaningful in terms of bringing stability in the level of production.

Much of the area of the nine districts under the jurisdiction of Mahatma Phule Krishi Vidyapeeth is known to be drought-prone. Not only that it receives inadequate amount of rainfall but it is more variable; and, therefore, the production level in this area is generally very low. Only about 13% of the land of Maharashtra is under irrigation. Therefore, this university has to make efforts in this regard and research has to be directed towards increasing production level in dry farming as well as irrigated farming.

An agricultural research centre was established at Solapur some sixty-two years ago. The research carried out at this centre has certainly helped in increasing the agricultural production in the drought-prone area. The Indian Coordinated Research Scheme also has contributed to raising the production level through emphasis on improved seeds, fertilizers, water and crop protection. Alternative choice of crops and decisions with reference to variation in rainfall are important aspects of research in this regard. To increase the productivity of the soil through the culture of organic components is also an important subject of research in the drought-prone area. This university has contributed much through such research for the benefit of the farmers.

Maharashtra is a state in which floods and water shortage are noticed simultaneously. Therefore, it is necessary that efforts should be directed to support maximum percolation of water and also towards the conservation of available water under the surface in this area. I believe that the research at this university is being carried out in this direction too. In fact Maharashtra is in the forefront in the whole country in the use of drip irrigation and sprinkle irrigation. Perhaps it is for this reason that the Indian Council of Agricultural Research has established the Centre for Research on Water Management in the vicinity of this University. I am sure that the scientists from this University and those from the Centre established by the Indian Council of Agricultural Research will work jointly to find solutions to the problems of water management for the crops of our country and specially with reference to Maharashtra.

During the British period dams were built to provide water for irrigation to the drought-prone areas and this has helped increase agricultural production in these areas. However, it is unfortunate that the water available for irrigation has been used disproportionately leading to creation of new problems. It has led to water logging of fields, increase in salinity and subsequently in reduction in productivity. For this reason demonstrations were carried out on the farms for the benefit of the farmers of the area to show a proper and proportionate use of water so as to avoid such problems. Mahatma Phule Krishi Vidyapeeth is carrying out for the last fifteen years research in these areas with the support of the World Bank; and I am told the World Bank authorities have expressed satisfaction over the performance in research carried out by this university.

Further, levelling and contour bunding as well as proper irrigation techniques are also important aspects and this university has successfully demonstrated how the production can be increased even with limited use of water. It is on the basis of the information available through such schemes that the Indian Council of Agricultural Research initiated water management research projects in different parts of the country and the information and results from such research will certainly increase the level of production.

I have already mentioned that only 13% of the land in Maharashtra is under irrigation and therefore it is necessary to direct our efforts through research to increase the percolation of water so as to increase the level of the ground water resources and also to increase the water level in the rivers. Mahatma Jyotiba Phule's suggestion to conserve water and to help percolation should be implemented rigorously. The university should give priority to these problems in its research projects. The project carried out at Ralegan Siddhi by Shri Annasaheb Hajare is one of the best examples that can be followed. This project has converted the once barren land into a green landscape and if such projects are implemented in different parts of the country on a large scale then Bharat can really become "*Sujalam Suphalam*"! We read in newspapers the report of extreme shortage of drinking water in many villages and the use of tankers to supply water to such villages. This is an indicator of the deficiency in water management and it is necessary that our agricultural universities should direct their efforts to find solution to this very serious problem.

It is indeed a matter of great relief that the State Government is implementing the project of horticultural development with a target of one million hectares. This project is expected to bring radical change in the rural areas. Mahatma Phule Agricultural University has contributed much through research in this area specially with reference to fruits such as grapes, ber, pomegranates, custard-apples, amla and tamarind. The Ganesh variety of pomegranate, though developed in 1936, could become available to farmers only in 1977. Later new varieties were developed through research such as G-137, Arakta, Mrudula and Suruchi. Nasik, Solapur and Sangli are three districts known for the production of grapes and good quality grapes are exported on large scale from these districts, helping our country to earn valuable foreign exchange. About 70% of the grape produced in the world is used for the production of wine and therefore it is necessary that research should be carried out in this field also. Similarly, it is necessary to develop techniques for proper drying of grapes with a view to develop export to the world market.

Besides water management, there are two other subjects related to agricultural problems which need to be considered. They are: productivity of soil and the protection of crops from pests and diseases. Agricultural science has made strides in these areas in recent decades. The agricultural universities need to study such problems specially with reference to the soil and crops in the areas under their jurisdiction.

Besides these physical problems there are two major social and economic issues which need consideration with a view to making agriculture more productive and profitable. The first among these is related to access to market and the price of the produce. It is not enough that the production should increase. But it is more important that even with the increased production agriculture should become a profit-making enterprise. And this needs to be considered seriously. Agriculture becomes economically viable and profitable when the produce has a necessary market and the distribution in the market is also more rational. In the changing economic context this needs to be considered even with reference to international market. It is, therefore, necessary that the technology related to such aspects, specially with reference to information and communication, also should be introduced in the courses at agricultural universities. It is expected that our universities and colleges will consider this aspect and modify the courses accordingly.

Agriculture has much scope in future in view of the liberal economic policy with reference to trade and commerce at the national level. Maharashtra has natural advantages for production of fruits, vegetables and flowers and the farmer in Maharashtra is fortunately very receptive of new ideas to carry out experiments in this regard. In fact, with the help of the university the farmers in Maharashtra have established their organizations or associations for different crops, such as the grape producers' organization, the ber producers' organization, the pomegranate producers' organization, etc and they have worked in the right direction to export fruits, vegetables and flowers and have earned foreign exchange for the country. Mahatma Phule Agricultural University is helping such organizations to sort out their difficulties.

Much is talked about the subject of biotechnology in agricultural research. The traditional methods of developing crops have certain limitations and in case of most of the crops the production has nearly reached the threshold level. In respect of all such crops biotechnology can find new ways for improvement in quality as well as productivity. This includes the use of biofertilizers, biopesticides and integrated pest control measures and such other ways and means to improve production. I am aware that Mahatma Phule Agricultural University has made commendable contributions in this area also. It is with the help of this university that the Department of Agriculture has introduced the artificial insemination for improvement of cattle on the farm in recent times.

I am also happy to note here that recently at the agricultural exhibition at Delhi the contribution of farmers from Maharashtra in horticulture section was considered to be praiseworthy. In this regard this university has certainly contributed much with respect to production of fruits, vegetables and flowers which must be noted.

In a state like Maharashtra when one considers the transportation and communication system and the place of metropolitan Bombay, it is obvious that it is much easier to export agricultural produce to other countries. With this in view a number of companies from abroad come to Maharashtra to purchase vegetables and flowers. It is necessary that agricultural University should direct its research towards this aspect and provide guidance to farmers and exporters. It is for this reason that the Indian Council of Agricultural Research has provided sufficient funds to increase research on horticultural development.

Considering the need for development of agriculture science in present days, I think it is necessary to bring about some changes in the prevailing educational system. It is necessary to give education related to international marketing, related industries, environmental pollution and various enterprises related to agriculture.

Another important aspect of our agricultural problems is the need to give the benefit of the knowledge available from our universities and colleges to the farmers who are directly engaged in agriculture. To bring about extension of agricultural education, the graduates from agricultural universities can function as important agents. Such graduates should make special efforts to take this knowledge to the farmers. This will enable the farmers to use the knowledge profitably. It is true that since the green revolution this change has taken place to a considerable extent in different parts of the country. Even then it is necessary to consider the resistance of traditions and social constraints to changes related to modernization. It is also a challenge to the graduates of the university in their future life. The knowledge acquired in the university should not be considered as useful only for your profession but it should be taken as a moral responsibility to spread this knowledge from wherever you may be working in future.

Unfortunately, it is observed that the knowledge acquired is confined to the job related to the employment. It is observed that very often good schemes are entangled in the red tape and cannot reach the sections of society for whom they are meant on account of this attitude. If the agricultural universities take a lead in this regard, the desired benefits of the process of economic development will reach all sections of the society. I hope that agricultural universities in Maharashtra and the graduates coming out of these universities will always carry this thought in their mind and within next few years it will help overcome the difficulties faced by the agriculture in Maharashtra.

I wish to draw your attention to another important aspect. It is a significant need of the agriculture in Maharashtra that the water of the rivers flowing eastward in the State should be harnessed for the benefit of agriculture, specially as indicated by the Krishna-Godavari water tribunal. It is necessary to make arrangements to harness this water up to the limit given by the tribunal by the year 2000 A.D. It is the need of the hour that all the agricultural universities in Maharashtra, the agricultural scientists and the government machinery should make special efforts to accomplish this task. It will not be out of place if we record our expectation that government will make necessary arrangements to implement such plans.

The various steps described in brief so far and the related subjects, it is hoped, will be studied in our agricultural universities and research will be carried out in that regard; and further, this will help to bring the expected development in Maharashtra and the whole country. Of course, while carrying out the work in the fields of agricultural education, research and extension, the universities have to face many problems. For smooth functioning of the universities it is necessary that the required financial resources should be made available to them. For carrying out agricultural development projects, considerable funds are required.

While implementing schemes such as improvement of wastelands, watershed development, oilseed and pulses development, pest control and drip irrigation, considerable research has to be carried out. Therefore, some part of the funds available for agricultural development need to be apportioned to the agricultural universities for research and development programmes. The National Agriculture Commission has recommended that 16 per cent of the developmental expenditure should be made available for agricultural education, research and extension. However, at present, I am told, it is only 5 to 6 per cent.

The Indian Council of Agricultural Research has established national agricultural research project and national agricultural aid project to support research and teaching in agricultural universities. This will help agricultural universities in Maharashtra. If the state government also develops such projects, it will further help these universities to carry out research on problems specially related to Maharashtra.

The poet Govindanraja has very aptly described the diversity of the land of Maharashtra as "the rough, tough land of rocks, the fine tender land of flowers, the land of thorny trees and bushes and also the land of fragrant flowers and tender trees". I hope that the teachers, students and all employees of the Mahatma Jyotiba Phule Agricultural University will always remember this description of Maharashtra while carrying out their work related to teaching, learning and research. I believe that the agricultural universities and the graduates will carry out their work with a sense of responsibility and will come up to the expectations of the people of Maharashtra.

Excerpts from the Welcome Address

by

S.K. Dorge, Vice Chancellor
Mahatma Phule Krishi Vidyapeeth

Agricultural Education : With the establishment of agricultural university, fundamental changes in the educational pattern and assessment programme were introduced to improve the quality of education and increase the intellectual level and competence of our students. In addition, necessary changes in the syllabi are made from time to time to modernise the educational pattern and update the recent developments in the field. Rural Agricultural Work Experience programme is incorporated in the present syllabus which has resulted in developing confidence in the minds of the students. The modern methods of farming, the hi-tech know-how and environmental sciences have also been included in the syllabus.

Degree programme in the Agricultural Sciences, Agricultural Engineering, and Veterinary Science and a separate postgraduate programme are being undertaken in this university. A batch of 550 agricultural and 205 engineering students is being admitted every year. Similarly, 20 students at the College of Horticulture, Pune and 32 students at Krantisinha Nana Patil Veterinary Science, Shirval are also given admission every year. Various job oriented programmes are also being launched in various non-governmental and cooperative organizations, etc to make the agricultural education public oriented as per the need of the society. Mali Training, Poultry Training, Diploma in agriculture etc are the examples of such programmes. Krishi Vigyan Kendras are also run by these organizations. Training classes for farmers are also run by this university. The educational programmes of the university include a variety of subjects in agriculture. Apart from this, special training facilities are extended by the university for the students appearing in competitive examinations held by Maharashtra Public Service Commission. Every year about 100 students are getting brilliant success in these examinations.

Agricultural Research : In the operational area of this university 73.46 lac hectares are under cultivation, out of which 14% area is irrigated. About 80% of drought prone area of the state is within the jurisdiction of this university. This necessitates the diversified fields of research. During the last 25 years the university scientists have developed important varieties in the crops like paddy, sorghum, *bajra*, *tur*, pulses and oil seeds like groundnut, sunflower etc, of *Kharif* and wheat, gram, safflower etc. from *rabi* season. In addition to these food crops, cash crops like cotton, banana, grapes, guava, ber, pomegranate, onion, vegetable crops are also grown. Floriculture is also the fast growing horticultural industry of these days.

Since the inception of the university, 74 important cultivars have been developed and released for the farmers. These have become very popular not only in Maharashtra but also in the neighbouring states. Among these varieties Swati of *rabi* Jowar; Shradha of Bajra; Indrayani, Pawana and Kundalika of Paddy; NI-5439 and 5643 of Wheat; Vikas, Vishwas and Vijay of Gram; Phule Pragati of Groundnut; Bhima and Tara of Safflower, are the most popular ones. Besides the, Y-1 and Dhawal varieties of Cotton; CO-7219, 86032, 8014, CO-M-7125 and 7714 varieties of sugarcane have also gained popularity. The university has recommended improved varieties of ber, Ganesh and G-137 of pomegranate; Krishna and Narendra 7 & 10 of Avala have been recommended to improve the productivity of dryland area. In addition to this the university has popularised Baswant 780 of Onion, Krishna of Brinjal, Dhanshree, Bhagyashree and Rajashree of tomato. The scientists from this university have succeeded in getting tripple cross cow yielding 3000 to 4000 litres of milk per lactation at an average. Amongst the fodder crops, African tall of Maize, Ruchira of Sorghum and Yashwant Napier grass have become popular. The university has taken up seed production of improved cultivars to supply to public sector organizations for further multiplication. In order to reduce the expenses on agricultural production, it is essential to develop improved farm implements. This university has made available such improved farm implements like two bowl seed drill, Jyoti planter, Sunflower thresher, etc. These implements are available on subsidy to the farmers.

In order to find out improved agricultural techniques for over 80% of dry land in the state, research work is started at Solapur since 1933. This station has developed appropriate dry farming technology, adoption of newly improved varieties and technology has shown that the production can be increased 2 to 3 times. Farmers are utilising these techniques on very large scale and with that the production of *rabi* jowar in Maharashtra has reached to 25 lac tonnes.

In Maharashtra irrigation resources are scarce, therefore improved methods of water management have been suggested by Mahatma Phule Krishi Vidyapeeth. Drip irrigation and sprinkler irrigation are used in Maharashtra as per the recommendations of the University. Government of Maharashtra provides 15% subsidy to the farmers for the pressurized system of irrigation. The technologies are being used over 35,000 hectares of our state.

The post harvest technology and management have been popularised to extend the shelf-life of fruit and vegetables, by adopting technology of zero energy cool chamber. In addition, fruit juices, jams, dry fruits can be prepared by using the technology and the farmers are given guidance and training for the same.

In order to increase the agriculture production with the use of modern technology, medicinal and aromatic plants are planted at the Central Campus of the University. 400 herbal plants are being tested. Sonamukhi, Isabgol, Guggual, Shatawari, Davana, Gyranium, Cintronella are some of the useful plants amongst them.

In addition to these, research is being conducted on polyhouse technology, hi-tech agriculture, biological control of pests and diseases, tissue culture, bio-fertilizer. The improved techniques of Tissue Culture, Embryo transfer technology, etc will be taken up as the future research plans.

The seed production is an important activity of the university for breeder and foundation seed production. During the last year, seed of 106 and 509 tonnes was made available to the Maharashtra State Seed Corporation. Besides this, saplings of improved varieties, grafts, bud sticks are also made available on large scale.

Extension Education : The Scientists from the university and the extension workers from Department of Agriculture are in the constant work of extending the improved technologies developed by the university to the farmers. In addition to this, programmes like farmers rallies, seminars, group discussions are also organized to popularise the technologies. Radio, Television, and print media are also being used to spread the results of useful work of the university. The Central Campus research stations and agricultural colleges, of the university are being visited by a large number of farmers, scientists and other dignitaries from Maharashtra and other states. Over 15,000 farmers visited the university in the year 1994-95. Mahatma Phule Krishi Vidyapeeth organizes small workshops on various subjects in collaboration with Indian Council of Agricultural Research.

To Our Contributors

Contributors are expected to submit only original articles for publication in the *University News*. If an article is found to be plagiarised, it will be the sole responsibility of the contributor to face legal action, if any.

University-Industry Interaction

A workshop on 'Establishment of Liaison Cells in Universities for University-Industry Interaction' was organised by the Association of Indian Universities in New Delhi recently.

Prof K.B. Powar, Secretary General, AIU in his welcome address detailed the objectives of the workshop which included: (i) to acquaint the participants with various functions of the Liaison Cell for University-Industry Interaction, (ii) to indicate the requirements for the establishment of the Cell, and (iii) to provide the participants with model of physical and financial requirements, and formats of the Cell for collection of information in the universities and details of industries in the neighbourhood.

Dr. Anand Sarup, former Secretary, MHRD and now Consultant, UGC, in his introductory remarks pointed out that there was a need for university and industry understanding each other and recognising the variations existing in both industrial and university sectors.

Inaugurating the workshop Prof. V.R. Mehta, Vice-Chancellor, University of Delhi, said that major purpose of education was the improvement of the poor and the first generation learners. He pointed out that the present scheme of vocationalization of higher education had to be linked to the needs of the industries; higher education research had to be more application oriented; and we had to guard against 'domination-subordination syndrome' with regard to the university-industry interaction.

The functions, organization and requirements of the Liaison Cells were presented by Prof. K.B. Powar. He said that the major functions of the liaison cells should be to prepare a database on the expertise and facilities available in the university and the consultancy services it was capable of offering; maintain close liaison with the industries in the university area and keep them informed about the facilities available in the university; provide facilities for characterisation and testing of material and certification; undertake consultancy job, and assist and monitor patents and transfer of know-how, and offer short-term training courses to science, engineering, management and other professional graduates. Operationally, he pointed out, the Liaison Cell should have a computer for database, a sectional library containing essential documents required by industry, and be headed by a senior faculty from the university.

Prof. V.S. Prasad, Director, Distance Education Council, IGNOU who chaired one of the sessions, in his concluding remarks, pointed out that the local experience had to be taken into account and the majority of the universities should concentrate on the small scale industries situated in cities and small towns. Also, university chairs, with grants from industries, should be created, not as charity but as fruitful interaction between the two and of mutual benefit to both. The university should design curricula keeping in view industrial needs. Professional associations should also be associated in order to ensure flexibility in university structure and administration, he stressed.

Model Consultancy rules prepared by AIU covering various types of consultancy like institutional, individual and technical services; procedures to be followed to approve consultancy proposal; points to be noted while working out the cost of consultancy project; distribution of consultancy amount, and amounts received from potency to various stake holders; and effective utilization of consultancy services etc, were discussed. Dr. Nirmal Singh of IIT, Delhi presented the consultancy rules of the IIT, Delhi covering needs, objectives, types, sharing patents, etc. The case of EdUTRONICS group related to staff development and hand-on components of science and technical education in India and various processes related to development of cost-effective teaching-learning tools, and manufacturing and marketing of the tools and strategies were discussed by Prof. K.V. Sane of University of Delhi.

Prof. Powar presented a detailed case on the development of databases and a detailed model questionnaire developed by his team at Shivaji University on the basis of needs and capacities of industries, and also another questionnaire developed at AIU to be used by universities for developing database on staff and facilities. He pointed out that for developing databases the universities have to tap the local expertise as well as consider the local needs. The question-

(*Contd. on page* 22)

HUMAN RESOURCE

TOTAL HUMAN RESOURCE DEVELOPMENT EXPENDITURE (REVENUE A

	Total HRD Expenditure (Rupees Crore)			
	1988-89 *(A/c)*	*1989-90* *(A/c)*	*1990-91* *(A/c)*	*199* *(R*
All States	11691.30	12310.33	13107.98	13049
High Budgetary Deficit States				
Tamil Nadu	632.51	1023.00	1139.92	1103
Jammu and Kashmir	243.16	245.45	260.64	275
Bihar	759.67	836.36	901.26	898
Andhra Pradesh	891.50	977.84	968.10	95
Himachal Pradesh	189.78	166.48	177.20	194
Karnataka	671.40	670.77	698.49	775
Punjab	486.20	437.04	407.79	45
Kerala	523.92	535.13	589.03	54
Low Budgetary Deficit States				
Goa	60.10	62.01	67.29	68
Madhya Pradesh	766.70	796.12	885.56	89
Manipur	75.17	76.88	63.70	61
Meghalaya	52.15	60.25	61.91	72
Nagaland	70.10	75.84	68.64	59
Sikkim	22.89	26.02	25.57	27
Tripura	102.10	99.89	103.18	100
Maharashtra	1412.25	1426.64	1418.51	1465
Gujarat	743.15	722.91	750.53	76
Arunachal Pradesh	51.52	50.07	44.86	44
Haryana	311.49	298.48	300.57	305
Budgetary Surplus States				
Uttar Pradesh	1246.84	1457.26	1581.36	139
Assam	354.90	339.62	364.72	352
West Bengal	801.67	858.90	1057.38	972
Mizoram	51.18	48.63	49.35	4
Rajasthan	620.76	626.91	724.96	721
Orissa	368.20	399.74	397.02	47

Notes : Of the 19 states showing deficit in their budgets, the deficit of eight states equalled 76 per ce of the total combined deficit. These 8 states have been classified as high budgetary deficit sta The other 11 have been classified as low budgetary deficit states.

OPMENT DATA - 3

CCOUNT) AT CONSTANT PRICES (1980-81) AND THEIR GROWTH RATES

	Growth Rates (Percentage)				
2-93 E)	*1988-89 (A/c)*	*1989-90 (A/c)*	*1990-91 (A/c)*	*1991-92 (RE)*	*1992-93 (BE)*
.34	10.13	5.29	6.48	–0.45	–1.12
.95	1.19	22.88	11.43	–3.19	–0.51
.68	22.90	0.94	6.19	5.85	–10.59
.81	N.A.	10.10	7.76	–0.30	–0.64
.99	3.06	9.68	–1.00	–0.85	5.43
72	18.76	–12.28	6.44	9.68	–10.62
93	2.00	–0.09	4.13	10.96	5.92
24	16.83	–10.11	–6.69	11.53	–2.33
37	8.57	2.14	10.07	–6.86	8.88
87	28.92	3.18	8.51	2.36	–14.53
97	4.21	3.84	11.23	0.71	–1.10
06	28.66	2.27	–17.14	–3.06	–7.60
32	16.14	15.53	2.76	17.01	1.21
56	2.51	8.19	–9.49	–12.92	–15.41
17	–7.75	13.67	–1.73	6.80	3.15
29	24.00	–2.16	3.29	–2.94	3.14
79	22.31	1.02	–0.57	3.30	–9.87
54	4.14	–2.72	3.82	2.37	–3.21
15	2.25	–2.81	–10.41	–0.29	0.94
0	20.16	–4.18	0.70	1.67	6.85
5	21.37	16.88	8.52	–11.59	–10.36
4	1.49	–4.31	7.39	–3.30	6.71
3	0.60	7.14	23.11	–7.98	9.80
6	–11.70	–4.98	1.48	–1.34	–13.21
5	2.05	0.99	15.64	–0.46	–1.60
0	8.84	8.57	–0.68	20.74	–0.47

ce : S.P. Gupta and A.K. Sarkar. Fiscal Correction and Human Resource Development : Expenditure at Central and State Levels. *Economic and Political Weekly* 26 March 1994.

(*Contd. from page 19*)

naire of Shivaji University, based on seven lakh population of Kolhapur city and the needs of industries around Kolhapur, could be suitably modified by respective universities, he added.

The experiences of existing Liaison Cells in a few universities were presented by some of the participants. Experience of the Industrial Research and Development Unit (IRDU), IIT, Delhi was presented by Prof. M.L. Gulrajani and Prof. D. Parshad. According to them, the achievement of IRDU was an excellent example of stronger institute-university relationship/interaction for mutual benefit to both. Similar beneficial experiences and strong relationship between institute and industry were presented by Mrs. Riju Rai of BITS (Pilani) and Prof. Ashok Padhye of Science and Technology Park (University of Poona). The Practice School Programme of BITS was a successful venture in building confidence as well as collaboration between the institution and industries around it.

The collaborative efforts of the Science and Technology Park of University of Poona and Philips India Ltd. (Pune Zone), presented by Mr. V.P. Rabade, Marketing Division, Philips India Ltd. was a successful story of stronger industry and university interaction. Prof. Padhye said, "We do not have financial problem as much as we have psychological problem. The major hurdle is that the industrialists and academics remain confined in their respective shells. We have to convince each other that we can work for each other, with high success and greater financial viability to both. The scientists need to convert scientific research to technology and techniques for their smooth transaction to industries. The laser project of the Science and Technology Park is an excellent example of successful joint venture."

Brig. M.R. Narayanan, Chief Executive, Modern Malleables Ltd., New Delhi presented a case of University-Industry-Government interaction, and suggested that scientists should move away from the 'head set' concept to 'participative concept'. The model of University-Research Institution-Industry interaction for 'Electronics for Rural Development' experimented by him was an example of university-industry and society interaction. The experience of Canada-India 'CIICP' Project for University-Industry interaction was presented by Dr. P.J. George, Project Director and Executive Secretary, Indian Society for Technical Education. He extensively dealt with the Liaison Cells' requirements, qualities of the head/manager of Liaison Cell, training skills required for University-Industry interaction, and ways and means to overcome the barriers between university and industry for their fruitful interaction. Mr. Manjul M. Kulshreshtra, Manager, Vendor Development, Maruti Udyog Limited said that interaction and synergy was needed to be undertaken with universities; and presented areas of concern with regard to 'better performance' and 'reduction of cost'. He laid more stress on the requirements of component engineering, and the need for indigenisation of component industry to which universities and other research institutions could significantly contribute. The underlining principle was "result orientation which can be quantified", he said.

Prof. S. Venkateswaran, Director, BITS (Pilani), in his valedictory address, said that if we had a planned programme, the Liaison Cell would naturally emerge in the university campus. For this to happen, we must define our educational philosophy, match our goals with the goals of the students, plan the educational programmes accordingly, go to the industries to ascertain their actual needs, and meet the requirements of the industries on an ongoing basis since such requirements changed from time to time. For this we had to have a flexible modular system of curriculum, and create a favourable work culture within the university's organizational set-up, he opined.

About 20 senior academics from Universities of Agra, Andhra, Barkatullah, BITS, Bombay, Indian School of Mines, IGNOU, Jadavpur, Kanpur, Kerala, Kurukshetra, Madras, Maharaja Sayajirao, Maharshi Dayanand, Punjabi, Rohilkhand, Shivaji, Sri Venkateswara, Utkal and Wadia Institute of Himalayan Geology, participated in the workshop.

Orientation Programme for Teachers

The Academic Staff College of Gorakhpur University recently organised the XXth Orientation Course. Inaugurating the course Prof Vidya Niwas Mishra a renowned scholar, linguist, litterateur and journalist extensively dealt with the ills now afficting the higher education in India. The system of higher education, according to him, was crumbling under the increasing load of numbers specially of those least interested in the pursuit of knowledge. This had undoubtedly pushed the quantum growth of education but at the lamentable cost of quality which, if not preserved effectively, would reduce the entire system to a farce. To cope with this, he suggested the diversion of the crowd of students to professional courses after they passed the 10+2 standard. Then alone, the higher education would meaningfully be imparted to a limited and genuine number with penchant for pure knowledge, he opined.

Prof. Mishra lashed out at the irrelevant policies such as prescribing a uniform syllabus. He observed that the centres of higher education should not only be autonomous but entirely free to devise their courses and evolve the methodology of teaching as they deemed fit to fulfil the requirements of the students. Prominent centres of learning, according to him, had ever been known by the towering intellectuals such as Raman or Radhakrishnan, etc. If an institution succeeded in creating one or two such intellectuals the very objective of higher education was fulfilled. He maintained that a teacher who went on polishing his knowledge by assimilating and marshalling new facts was himself an embodiment of higher education, and said that a teacher should generally have deep insight into three areas, viz., Philosophy, History and languages. He should be able to visualise the cause of a particular phenomenon, comprehend its sequence and express himself effectively. While dealing with the students in the classroom, a teacher should go with full preparedness and must create an atmosphere conducive for interaction, questions and counter-questions. In the present educational scenario, a teacher neither had the scope nor the will to interact with the students which signalled the greater danger to the quality of higher education. Striking a note of caution, he urged that it was erroneous to think that higher education which stood for pure knowledge would address to our immediate problems. This could be possible in the applied knowledge but so far as pure knowledge was concerned, it could never produce quick results. This according to him, was meant to create a larger psychology nourished on wisdom and discrimination.

All these ills notwithstanding, higher education in India had a future. He called upon intellectuals and policy makers to put their heads together to evolve such programmes and policies for higher education as may put it on high pedestal to guide the destiny of India.

Centre for Marine Archaeology

Sponsored by the Department of Science and Technology (DST), a Centre for Marine Archaeology (CMA) has been set up in the Andhra University of Vishakhapatnam to undertake extensive study of shipwrecks, submerged ports and temples on the East coast.

Mr. E.V. Gangadharam, the director of the centre, is reported to have sent a proposal to DST for allocating Rs 15 lakhs to finance a project for scanning the seabeds along the West Bengal, Orissa and Andhra Pradesh coasts.

Under the project, two exploratory ships of the Geological Survey of India, *Samudra Manthan* and *Samudra Kausthub*, were engaged for exploring sites of shipwrecks among other studies.

The three-year project of the CMA will also be facilitated by the National Institute of Oceanography (NIO) and the Naval Science and Technology Laboratory (NSTL).

According to Mr Gangadharam, priority will be given to explore the remains of old ports on the Orissa coast near the Chilka lake, and the Kalingapatnam sea port.

Numerous shipwrecks were reported near Baruah, too, including a ship loaded with timber, meant for Burma. Another potential site of shipwrecks, Bhavanapadu, will also be extensively explored.

Among other projects to be taken up is exploration of the Buddhist sites of Bavikonda and Toppakonda, with their fishing harbours and the famous submerged 11th century temple of Venkateswara Alayam, built by Kulothunga Chola.

Like the temple of Mahabalipuram, Vishakhapatnam also had a magnificent temple on its coast that could be restored, if possible. The DST project will seek the support of historians and archaeologists of Orissa and West Bengal.

Mr K.S. Behra of Kalinga University, Mr N.C. Ghosh of Santiniketan, Mr B.N. Mukherji of Jabalpur University and Mr Asin Dasgupta, former director of the National Library in Calcutta, were among those to be involved in the project.

Bharat Electronics, IIT Tie Up

The Public Sector Bharat Electronics Ltd's Central Research Laboratory (CRL) is reported to have entered into a collaboration with IIT, Kanpur, for development of an efficient algorithm called 'smartcard', which finds application in several areas, like in the field of microwave and satellite communication, with a high degree of security.

IIT, Kanpur, will work out various special complex algorithms for this project entitled 'designing an elliptic curve crypto system' and pass it on to the CRL which will do the application work.

CRL's chief scientist, Dr H Ramakrishna, said the smartcard being developed required much shorter 'key lines' and was a state-of-the-art technology. It was capable of enhancing on-line transactions and would be able to carry out complex computations at high speed precluding the possibility of tapping by a non-key holder.

He said the encryption group of CRL had developed a technology which resulted in a number of products including a bulk encrypter which encrypted the 'digital bit stream' coming out of a 'primary multiplexer' and contained information from a number of voice and data channels.

The encryption algorithms generated a noise-like digital sequence based on a crypto key, which was added to the multiplexer. The decryption was done by subtracting the same noise-like sequence, using a pre-arranged encrypt.

Dr Ramakrishna said conventional crypto systems employed a 'manual key management'. However, the work now being under taken was for development of 'automatic key management'.

The requirement of a transparent and 'fast key management' system was being addressed by the state-of-the-art schemes based on 'elliptical curves' which required shorter key lengths compared to those used in conventional systems. It was for working in this area that CRL had entered into a collaboration with IIT, Kanpur, he said.

The additional general manager of BE, Ms Renee Jhala, said for the first time in the country, BE had developed an 'applique' to the standard fax machines that provided high grade security with digital encryption for fax messages, called 'secfax'.

Secfax is a universal fax interface developed by using secret algorithms in the equipment made uniquely for each customer. The equipment itself could be customised for professional users as per their individual requirements. Secfax had a built-in liquid crystal display module and keypad to easily configure the equipment for various modes of operation.

New Courses at Kurukshetra Varsity

Kurukshetra University has introduced various new courses w.e.f. this session. These include: M.Sc. Microbiology, M.Sc. Biotechnology, M.Tech Educational Technology, M.Sc. Computer Science (Software), B.Tech. Instrumentation, Master of Finance & Control, Master of Marketing Technology, LL.B 5-year, Certificate Course in Indian Culture & Civilization, Certificate Course in Ticketing & Reservation, Postgraduate Diploma in Journalism, Advanced Diploma in French, P.G. Diploma in Adult Education, M.Tech, Computer Science & Engg., M.Tech Environmental Sc. & Engg., and B. Pharmacy.

In compliance of the decision the Bar Council of India, the University has decided to start LL.B (Professional) 5-year Course. The students who have passed 10+2 with 45% marks are eligible to seek admission to this Course. Special feature of this course is that after three years, candidates would be awarded degree of B.A. (Law). If a candidate wants to join M.A in any other subject, he would be free to do so and those candidates who continue their studies in Law would get the degree of LL.B on successful completion of 5-year Course. Besides giving them specialised training in Law, it would also save them one year for completion of LL.B.

The Department of Distance Education has introduced, during this session, three new courses of B.A. (One sitting), Master of Financial Management, and M.Ed. (Educational Management) apart from reviving the M.Com Course which was discontinued 4-5 years back.

Induction Training Programme

The Academic Staff College, University of Madras, recently organised its first Induction Training Programme for teachers of AICTE approved institutions. Sponsored by the All India Council for Technical Education, New Delhi, the programme was attended by 34 teachers belonging to various disciplines such as Mechanical Engineering, Electrical Engineering, Civil Engineering, Computer, Textile Technology, Physics, Chemistry and Management representing 12 Engineering Colleges, and 2 Technological Universities (Anna University and Annamalai University).

The main areas of thrust of the programme were (i) Introduction to Technical Education System in India; (ii) Development of Teaching Competencies in Planning, Implementation and Evaluation of Classroom Teaching; (iii) Development and use of Instructional Aids and other systems; and (iv) Principles of Evaluation of Students' Performance, basic Principles of Human Behaviour, Learning and Motivation.

As part of the course, each participant was given an opportunity to present a mini lesson in front of the CCTV camera which was video recorded and played back for assessment of his/her performance towards improvement. All the participants also planned and produced instructional media for their teaching.

Mental Health & Peace

Education Society of the Department of Education, Nagaland University, recently organised a one-day seminar on "Mental Health & Peace".

Dr. R.P. Shukla, President, Education Society, in his welcome address, said that peace was positively related to one's good mental health. He pointed out that when a person failed to produce positive responses to the relevant stimuli in the environment, he/she was likely to be mentally unhealthy or sick. Therefore neither he could draw peace for himself nor contribute to it for the society. Dr. Shukla suggested that we should inculcate virtues in children while presenting ourselves as a parent role model before them. Besides, children should be encouraged to imbibe good habits, morals, self-analysis and scientific ways of looking at social issues and derive peace within and without.

Dr. P. Ngully, Incharge, Mental Hospital, Kohima, who was the guest speaker at the seminar, introduced new concepts on the structure and functioning of human brain in relation to the causes of mental illness. He was of the opinion that in order to understand mental health, one must understand what was mental illness? What were the different types of mental illnesses and their causal factors? Dr. Ngully emphasised that when there was change in neuro-transmitter present in between the cells in the brain, it caused certain biological changes in the body and thus led to mental illness. He cautioned that while identifying and labelling an individual as mentally sick, we should take a cluster of symptoms into consideration. One should not form an opinion or diagnose basing only on one characteristic or symptom. He further said that the causal factors of mental illness could be hereditary, organic and environmental.

Dr. Ngully categorised the mental illness into three categories viz. (a) Psychosis (serious illness), (b) Neurosis (Minor illness), and (c) Epilepsy. He said that mental illness could be transmitted from one generation to another through parents. It could be a new case too due to an organic change or environmental factors. He said that there were many methods for treating mental patients. These included (a) Medicines, (b) Electrotherapy, and (c) Psychotherapy.

For promoting sound mental health, Dr. Ngully suggested various measures/ways targetted at the parents, teachers and society. These were (i) Educational orientation of both the parents and children for general awareness and mutual understanding for better life and adjustment; (ii) Extending love and affection towards children; (iii) Presenting a role model before children in order to develop healthy and desirable living style and demonstrating virtues in action; (iv) Removing many of the misconceptions related to mental illness prevailing in society and to develop a scientific attitude towards life's problems; (v) Identifying the undesirable changes in day to day behaviour and creating a conducive environment for healthy growth; (vi) Developing an intimate relationship between the parents and the children; and (vii) Developing a moral code in parents while dealing with their children.

While concluding his presentation, Dr. Ngully made a reference to some of the growing causes of mental illness in Naga society. These inter-alia, included (i) Rapid changes like high aspirations, growing needs, competition, material advancement, etc have led the youth even adults to drug addiction, alcoholism, premarital sex relations, etc; and (ii) Lack of opportunities to work and lack of realisation of their capacities and potentialities have made people's life purposeless and directionless creating a vacuum and psychological depression in general.

Prof. K.K. Sharma, Head, Department of Education, who presided, emphasised that rapid change without giving due weightage to the age old good values and morals in Naga society was the major cause for mental tensions and disturbance in man's psyche. Aimlessness among youth was another cause of restlessness, mental disturbances and disharmony which had affected the whole society. Lack of parental concern towards their children's development was also one of the factors for mental illness, he added.

Dr. Sharma suggested various measures for maintenance of sound mental health and establishment of peace in Naga society. These included (i) Development of positive attitude in man in order to meet the challenges of modern competitive life; (ii) Removal of fear from the minds of youngsters regarding insecurity and future prospects in a competitive society while stressing on education of self-culture; and (iii) Government should create conducive conditions of work for highly specialised professionals, intellectuals, youth and women to protect and preserve the human resource of Naga society.

Dr. Sharma concluded his address with the suggestion that yoga education and yogic practices could be adopted alongwith traditional formal system to maintain good mental health and peace. Yoga being a science of life and living which enabled the individual to develop intrinsic work culture, self confidence and self reliance in a most natural manner, could be the alternative to overcome mental tension and acute illness.

Policy Issues in Women's Education

Banasthali Vidyapith organised an orientation programme in Planning and Management for Principals of women's colleges.

Prof. Diwakar Shastri of Banasthali Vidyapith in his presentation on Policy Issues in Women's Education traced the history of the development of women's education as reflected in the reports of the various committees and commissions. He raised a number of points to ponder. These included (1) Issues in Higher Education — Equity vs Quality, Autonomy vs Accountability, Flexibility vs Uniformity; (2) Need to formulate issues in women's education as distinct from education in general; (3) Women's education at tertiary level : (a) Are the concerns which are manifest at primary and secondary levels important at the tertiary level also?, (b) Are there other concerns?; (4) Making education for women meaningful for *the students* — What students want to be? Is education helping them to be what they want to be? Are the present aspiration of the women students acceptable from the point of view of women's question? Can and should education do something to change these aspirations; and The wider question or women's status — the reasons for present day unsatisfactory situation — extent to which women themselves are responsible for such a situation; *The Parents* — the parents' perception of their responsibility in relation to the girls child and its impact on girls' own perception of herself and on the education of girls. Can we do something about it? and *The Society* — the need for enlightened citizens — citizens as human resource women as members of family — the endangered institution; it is important for the society that family as an institution should survive; (5) A variegated society; and (6) Role and mission of women's educational institutions, improving the access, changing the orientation of the system and the participants. Changing the accent of syllabus; Changing the contents of syllabus; Resisting the forces of status quo; and Resisting the regressive elements.

ICAR Awards

Eight scientists of the University of Agricultural Sciences, Dharwad are among the 65 scientists awarded by the Indian Council of Agricultural Research (ICAR) for developing technologies to combat drought in northern Karnataka.

Dr. O.D. Radder, Director of Research at the university, and his colleagues received the Vasantrao Naik award for their work on water conservation and dryland farming.

Others who received the awards were :

Dr. F.D. Sharma and Dr. Karan Singh of the Himachal Pradesh Agricultural University, Palampur for surveying and identifying the problematic areas of Kinnaur and Spiti valley in Himachal Pradesh.

Dr. U.C. Sharma and Mrs. Kamla Singh of ICAR research complex, Shillong for their studies on the development of sustainable crop production practices suited to the North Eastern region.

In the area of animal sciences, the award has gone to Dr. Abdul Gaffar Khan and his associates from JNKVV, Jabalpur for developing a small bodies colour bird to the liking of tribal people and having a higher egg production under the scavanger system.

The Hari Om Ashram Trust award in the area of crop sciences has been given to Dr. U.R. Murty, Director, National Research Centre on Sorghum, Hyderabad for the genetic improvement of Sorghum.

In the area of horticulture crops, the award has gone to Dr. S.N. Moorthy of the Central Tuber Crops Research Institutes, Thiruvananthapuram for starch characterisation of various tuber crops for industrial applications.

In the area of natural resource management, it has been given to Dr. B.S. Sandhu, Dr. K.L. Khera and Dr. T.B. Aujla of the Punjab Agricultural University.

The team awards for multi-disciplinary research in agriculture and allied sciences has gone to Dr. K.R. Solanki and his team from the Central Arid Zone Research Institute, Jodhpur for their contribution to the genetic improvement of the multipurpose wonder tree of Rajasthan, commonly known as Khejri.

The award has also been given to Dr. N.D. Majumdar and his associates from the Central Agricultural Research Institute, Andaman and Nicobar Islands for introducing relevant technologies having a direct bearing on the farmers of Bay Islands.

Dr. Gurmel Singh has been given the award for his contribution in the area of agroforestry and watershed management at the Central Soil and Water Conservation Research and Training Institute, Dehradun.

Dr. B. Jayaraj and his associates from the Tamil Nadu Agricultural University got the prize for their research on microbial pathogens for the management of some important crop pests.

Dr. G. Kalloo and his team from the Haryana Agricultural University got the award for developing high yielding, pest and heat resistant varieties of vegetables.

Dr. K. Gopakumar and his team from the Central Institute of Fisheries Technology, Cochin and Mrs. Gobi Kumari Vinci and her associates from the Central Institute of Capture Fisheries Research Institute, Barrackpore got the joint team award.

The other recipients include Dr. S.P.S. Ahlawat and his team from CARI, Andaman & Nicobar islands for development of integrated farming system based on livestock. Dr. H.K. Pradhan and his team from the Indian Veterinary Research Institute, Izatnagar have been awarded for developing control measure against Marek's disease in poultry and guails.

Computer Applications in Social Sciences

The Centre for Social Studies, Surat proposes to organise a training course on Computer Applications in Social Sciences from 11-20 September 1995. Sponsored by ICSSR, New Delhi, the course is particularly meant for those who are engaged in survey research and have to deal with data processing and analysis. The course is aimed at exposing the participants to computer processing, fundamentals of computers, basic requirements of proper processing of data and to give a general idea about the organisation and quantification of data and statistical methods. Knowledge of basic statistical methods is essential.

The course contents include (1) Introduction to Computer, its structure and input-output devices, general guidelines on hardware and software selection, various input/output mediums; (2) Survey research and codification of data, its advantages and limitations; (3) Transfer of coded data to input mediums, data retrieval and data validation; (4) Introduction to PC software; (5) Making use of computer analysis; (6) Statistical techniques; (7) Use of SPSS (Statistical Package for Social Sciences); and (8) Introduction to LAN and E-Mail.

Further details may be obtained from Mr. Vimal Trivedi, Course Director, Centre for Social Studies, South Gujarat University Campus, Udhna-Magdalla Road, Surat -395 007.

Course in Stock Exchange Studies

University of Bombay is reported to have introduced a part-time course in stock exchange studies. Graduates from all streams are eligible.

The university also plans to introduce other short-term courses on the capital market such as international financing, financial future and options, merchant banking and financial services.

News from UGC

Countrywide Classroom Programme

Between 24th July to 31st July, 1995, the following schedule of telecast on higher education through INSAT-ID under the auspices of the University Grants Commission will be observed. The Programme is presented in two sets of one hour duration each every day from 6.00 a.m. to 7.00 a.m. and 1.00 p.m. to 2.00 p.m. The programme is available on the TV Network throughout the country.

Ist Transmission

6.00 a.m. to 7.00 a.m.

25.7.95

"Made in Chicago"

"Optical Detectors"

"Energy Flow - Part II"

27.7.95

"Draft Processing - An Introduction"

"Soil Erosion"

"Post Colonial English Literature"

29.7.95

"Popular Statistics"

"The Visual Environment and Behaviour - Part I"

"Fresh from your Garden"

30.7.95

"Kathak"

"The Father of Hybrid Rice"

"The Week Ahead"

IInd Transmission

1.00 p.m. to 2.00 p.m.

24.7.95

"Oscillation - Explanation and Definition"

"Heuristics : An Introduction to Heuristics"

"With Reference to"

25.7.95

"A Voyage in Science"

"Legal Literacy in South Africa"

"Oxygen Radicals and Antioxidants - Part XII : Antioxidants in Food"

26.7.95

"515.3"

"Alampur through the Ages : Part I"

"Mycotoxins"

27.7.95

"Shallow Deccan Basaltic Aquifer"

"Making of a Newspaper - Part VIII : Circulation and Advertising"

"Semiotic Approach to Musical Aesthetics"

28.7.95

"Origin of Universe"

"Education for Equality - II"

29.7.95

"Watchout What You Eat"

"Career Counselling : Engineering"

"The Week Ahead"

30.7.95

No Telecast

31.7.95

"Oscillation - Amptitude Response as a Function of Frequency"

"Heuristics in Business Management"

"Mother Dairy - The Fountain of Growth"

Hindi Telecast

प्रातः 6.00 से 6.30 बजे तक

24.7.95

"मालवा के सिक्के"

"आपका स्वास्थ्य आपके हाथों में – भाग 1"

26.7.95

"आपका स्वास्थ्य आपके हाथों में – भाग 2"

"पैसे का विकास"

28.7.95

"आपका स्वास्थ्य आपके हाथों में – भाग 3"

"सूफी संत मलिक मुहम्मद जायसी – भाग 1"

"व्यक्तित्व एवं कृतित्व"

31.7.95

"तुलसी जन्मस्थली की खोज"

"ध्वनि प्रदूषण"

INLAKS SCHOLARSHIPS 1996

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A Timely Publication

M.V. Pylee*

D. Amarchand. Government and Business. Third Edition. New Delhi, Tata McGraw-Hill, 1994. Pp. 192. Price not stated.

In the context of the revolutionary changes India has been experiencing in the economic field during the last four years the relationship between the Government and Business has undergone a corresponding change. For forty years India has been proclaiming from housetops that it stood for a socialist society. Naturally India's economic policies had to be in conformity with that declared policy. The government was the big brother who not only controlled but disciplined the business as it alone had the final say as to how the country's economic activities were to be organised. The government claimed, as is the case in all controlled economies, that it had the wisdom and nobody could and should question it. A few politicians and bureaucrats together had in their hands the destiny of the country, its economic progress and the directions in which it had to go.

Soviet Union was the model and centralised planning and bureaucratic execution were the guidelines. The fact that many other countries which followed a different approach had made spectacular economic progress did not impress India. Countries such as Japan, Taiwan, South Korea, Hongkong, Singapore, Malaysia, Indonesia, under a different development model, had within the same time made spectacular progress and left India far behind in everything that is connected with development and economic progress. But we poohpoohed them by saying that they were after all small states and compared to India were only pigmies and their example had no relevance to India.

But the collapse of the Soviet Union gave a rude shock to everyone in authority in India. It was something so unexpected that Indian planners and policy makers did not know what to do. Governments of V.P. Singh and Chandra Shekhar were under a shock but with not enough political strength to back them up could not do anything. The country was going through crisis after crisis and it reached a stage when it could not service its external debt without mortgaging the country's gold stock abroad.

The government that followed the Chandra Shekhar Ministry in 1991 and headed by Narasimha Rao had no other alternative except a complete reversal of the old economic policies and adopting a market-oriented one. Not that Rao and his Finance Minister Manmohan Singh were market disciples or neo capitalists. In fact, they were as much socialists as their predecessors. But when they confronted a situation of utter economic chaos and there was no other way open to get out of it, they had to embrace the new policy. They found that the old slogans would not take them anywhere. If they did not act firmly and quickly the country was going to face a catastrophe. Hence the announcement of a new economic policy on July 24, 1991 heralded a new era of change from a government-regulated economy to a market-oriented one. This book covers the main aspects of the basic regulating framework which the owner of a business enterprise or a student of business policy ought to know.

Even today after the introduction fo the new economic policy, India has not got rid of the old typically bureaucratic procedures and practices. After all, it is difficult to get out of one's age-old habits. Even today one needs expert advice as to how one should proceed and what are the likely hindrances in one's path if the objective is to set up an industrial venture and run it satisfactorily.

The book has nine chapters : (1) Industrial Policy, (2) Capital Issues and Stock Exchanges, (3) Monopolistic, Restrictive and Unfair Trade Practices, (4) Consumer protection, (5) Intellectual Property Rights, (6) Rehabilitation of Sick Industrial Companies, (7) Foreign Direct Investment and Exim Trade, (8) Company Organisation and Management, and (9) Government, *Business and Society*.

All these are important topics and each has relevance in the present economic situation and its impact on Industrial ventures. The book is written in a very simple style and businessmen and students alike will find it easy to follow. The bibliography at the end is a useful additional attraction to those who want to read further on the subject.

It is a timely publication and deserves to be commended.

**Director General, Asian Institute of Development and Entrepreneurship, HMT Colony, Kalamassery, Cochin-683 503.*

Remembering Prof Ram Reddy

I have learnt with a deep sense of anguish and shock about the sad and sudden demise of Prof G Ram Reddy, founder Vice Chancellor of the Indira Gandhi National Open University (IGNOU) and former Chairman, University Grants Commission (UGC), who was presently the Chairman of the Indian Council of Social Science Research (ICSSR).

Prof Ram Reddy's name will be written in golden letters in the history of education, particularly the distance education, in the country.

I crave the hospitality of your columns to share with your readers an incident which brings out the sense of justice and fair play that was so characteristic of Prof Ram Reddy.

In the year 1984 (December) the Association of Indian Universities (AIU) hosted the Fourth International Conference of University Registrars and Educational Administrators, in which as many as 200 delegates from all over the globe including a contingent of about 75 Registrars and other officers from universities in India participated. Being the Registrar of the oldest university in the capital, at that time, I was given the responsibility to chair the Organising Committee of which all the Registrars of the universities and institutes in Delhi/New Delhi were members, as also to chair the National Organising Committee. The Conference had its headquarters in UK. I must say that we all worked very hard and the Conference was a grand success. The Organising Committee could save a sum of Rs. 68000/- which was placed at the disposal of the AIU for future academic work in the same direction.

The next session of this conference i.e. the Fifth International Conference was to be held in Sydney (Australia) in July, 1987. The Registrars of the universities all over India, particuarly those who had participated in the conference held in New Delhi, as also the AIU, were invited to this conference.

One day, while I was working in my office at Delhi University, a fellow Registrar from a sister university suddenly entered my room and stated that he had contributed a paper for the conference to be held at Sydney which had been accepted. But the Conference had offered him help to finance his one way journey only. He was finding it difficult to meet the remaining expenses to attend the conference. He further stated that he had approached the Headquarters of the Confernece in UK and they had advised him to get in touch with the AIU at whose disposal a rupee equivalent of 2500 pounds had been placed to assist the Registrars and others from Indian universities who may wish to attend the Conference.

We both drove straight to the office of Prof Ram Reddy in the IGNOU. Prof Ram Reddy was also the President of the AIU at that time. Prof Ram Reddy heard us coolly and said that he would look into the matter during the day and would do what was fair to be done.

Prof Ram Reddy was true to his word. The same evening the Joint Secretary of the AIU approached me to tell me that Prof Ram Reddy in his capacity as President of the AIU had constituted a Selection Committee with the author as its Chairman to select as many Registrars and Educational Administrators from universities all over India, who satisfied certain guidelines that may be laid down by the Selection Committee, for visit to Sydney to attend the conference subject to financial limit of Rs. 68000/- saved at the Conference held at New Delhi and rupee equivalent of 2500 pounds sent by the Headquarters of the Conference in UK.

I am happy to say that of the 17 Registrars and others from Indian universities who attended the conference at Sydney, as many as 11 were financed fully or partially by the funds placed at the disposal of the AIU which were in turn placed at the disposal of the Selection Committee.

The community of Registrars and Educational Administrators in India will remain ever grateful to Prof Ram Reddy for this gesture on his part.

Madan Mohan
(former Registrar and former
Controller of Examinations,
University of Delhi),
B-2/187,Paschim Vihar,
New Delhi-110063.

THESES OF THE MONTH

A list of doctoral theses accepted by Indian Universities

BIOLOGICAL SCIENCES

Anthropology

1. Gulrukh Begum. **Age changes in some somatometric characters with reference to nutritional status of Assamese muslims of Kamrup district**, Assam. Gauhati. Dr B Choudhury, Reader, Department of Anthropology, Gauhati University, Guwahati.

Biology

1. Behl, Neenu. **Genetic analysis for isozyme variation in Brassica napus**. PAU.

2. Dharmadhikari, Smita Milind. **Studies on bacterial degradation of nitrile compounds**. Marathwada. Dr M S Andhale, Head, Department of Microbiology, Institute of Science, Aurangabad

3. Hephzibah Rani, T S **Role of T cell Fc gamma receptor and certain other biochemical and genetic markers in the etiopathogenesis of iddm and middm**. Osmania. Dr Mohd Ishaq, Department of Genetics, Osmania University, Hyderabad.

4. Khati, Reeta Devi. **Microbiological and immunological studies on multiple drug resistant Salmonella typhi infection**. Dibrugarh. Late Dr S C Pal; Dr L P Dutta, Director (formerly) Regional Medical Research Centre, N E Region, Dibrugarh and Dr J N Sarma Bordoloi, Prof and Head, Department of Microbiology, Assam Medical College, Dibrugarh.

5. Mandokhot, Aparna. **Studies on T helper epitopes as synthetic carriers**. JNU. Dr Om Singh and Dr G P Talwar.

6. Meeta Rani. **Theoretical studies on protein sequences**. Hyderabad. Dr C K Mitra.

7. Mukhopadhyay, Rita. **Polyamine biosynthetic pathway: A potential target for chemotherapy in Leishmania donovani**. JNU. Dr R Madhubala.

8. Nagaraj, C Raghavendra. **Studies on sex and tissue specific BKM binding protein in mouse**. JNU. Dr Lalji Singh.

9. Rudrabhatla, Venkat Sairam. **Non-conventional methods for crop improvement in sorghum, Sorghum bicolor (L) Moench**. Osmania. Dr U R Murthy, Director, National Research Centre for Sorghum, Hyderabad.

10. Sharma, Pankaj. **The role of polyamines in the regulation of growth and differentiation in in vitro cultures of eggplant, Solanum melongena L.** Delhi.

11. Sinha, Sumita. **Biochemical and biophysical studies of human spermatozoa with special reference to Oligospermia**. Devi Ahilya. Dr Pradeep Kumar, Department of Biology, Devi Ahilya Vishwavidyalaya, Indore.

12. Surinder Kumari. **Interspecific hybridization among diverse sources in the genus Brassica**. PAU.

Biochemistry

1. Abrol, Smita. **Targeted toxin fusion proteins: Design and mechanism of action**. Delhi.

2. Bala Nirmala, P. **Protein-protein interactions in estrogen receptor biology:involvement of a nuclear localization sequence binding protein and ubiquitin**. Hyderabad. Dr R V Thampan.

3. Kukreja, Rajani Nebhandas. **Effect of selenium deficiency on immune system of rats**. Nagpur. Dr Aqueel Khan, Department of Biochemistry, Nagpur University, Nagpur.

4. Randhawa, Rupinder. **A study on fructan and sucrose metabolism in Cichorium intybus**. PAU.

5. Sreenivas, Kanugula. **Nucleic acid binding properties of a 11 KDa DNA binding protein from the Archaebacterium, Sulfolobus acidocaldarius**. Hyderabad. Prof T Suryanarayana.

Microbiology

1. Mann, Jagminder Kaur. **Genomic recombinations for induction of thermotolerance in Agaricus bisporus**. PAU.

2. Saxena, Arti. **Biochemical studies of cellulose and hemicellulose degradation by bird's nest fungus Cyathus**. Delhi.

3. Singal, Rekha. **Phosphate solubilizing fungi: Their applications in agriculture**. Delhi.

4. Vasdev, Kavita. **Lignin degrading enzymes and lignolytic system of Cyathus Sp.** Delhi.

5. Yadav, Raman Prasad. **Production, purification and characterization of an industrially important lipase from Aspergillus terreus**. Delhi.

Botany

1. Ainapore, Naeem Afrose. **Research on Deccan Intertrapean fossiliferous flora of India, inclusive of the paleobiochemistry of Enghmocarpon, Parijai**. Nagpur. Dr N T Sheikh, Department of Botany, Institute of Science, Nagpur.

2. Baruah, Shyamal Prasad. **Studies on the effect of shade on the morphological, physiological and biochemical characters of the tea plants, Camellia sinensis (L) Kuntze**. Gauhati. Dr C L Boissya.

3. Bordoloi, Nabanita Datta. **Studies on the effect of vary-**

ing concentration of plant growth regulators in the standard culture media on in-vitro micropropagation of sweet potato and pineapple. Gauhati. Dr C M Sarma.

4. Das, Himansu Sekhar. **Ecofloristic studies of the wetlands along the eastern coast of Orissa.** Utkal.

5. Dubey, Bal Chandra. **Studies on Rhizobium japnicum with special reference to soyabean production.** Durgavati. Dr S K Hasija, Prof and Head, Department of Bioscience, Rani Durgavato Vishwavidyalaya, Jabalpur and Dr M P Shukla, B N Fertilizer Plant, M P State, Agro Industries Development Corpoation, Bhopal.

6. Ettamal, Sreenivasan. **Tissue culture studies in economically important plants of Marathwada Region.** Marathwada. Dr R N Joshi, Prof, Department of Botany, Dr Babasaheb Ambedkar Marathwada University, Aurangabad.

7. Garg, Parveen Kumar. **Ethnobotanical survey of Madhya Pradesh.** JNU. Prof J Ashraf.

8. Gogoi, Puspadhar. **The ethnobotany of the Tai Khamtis of Assam and Arunachal Pradesh.** Gauhati.

9. Gupta, Alpana Arvind. **Phytochemical and taxonomic studies on Acanthaceae and related taxa.** Baroda.

10. Harsulkar, Abhay Madhukarrao. **Studies on the mutagenic effects of pesticides in barley.** Marathwada. Dr V S Kothekar, Reader, Dr Babasaheb Ambedkar Marathwada University, Aurangabad.

11. Indirasena Reddy, M. **Studies on the morphology and chemical constituents of some medicinally important seeds.** Kakatiya Dr P Vijay Kumar, Reader, Department of Botany, Kakatiya University, Warangal

12. Kapoor, Sangeeta. **Physiology of growth and development in plants - Hormonal regulation of protonema differentiation in the moss Funaria hygrometrica Hedw.** Delhi.

13. Laxminarayana, G. **Morphological studies (LM & SEM) of nutlet in Lamiaceae Lind. Kakatiya.** Prof S M Farooqui, Department of Botany, Kakatiya University, Warangal.

14. Nurmohammad Shaikh. **Genetical and immunological studies of a plasmid associated virulence factor of Shigella dysenteriae.** Burdwan. Dr B Nandi, Prof, Department of Botany, University of Burdwan, Burdwan and Dr R Kumar, Asstt. Director, National Institute of Communicable and Enteric Diseases, Calcutta.

15. Prabhakar, D. **Microbial dynamics in decomposing leaf litter of Diospyros melanoxylon.** Kakatiya. Prof S M Reddy, Department of Botany, Kakatiya University, Warangal.

16. Pradeep, A K. **Morphologic and taxonomic studies of Malvaceae of Southern Peninsular India.** Calicut. Dr V V Sivarajan, Department of Botany, University of Calicut, Calicut.

17. Revathi, R. **Molecular and genetic perspectives of fungicide (Bitertanol and fenapanil) resistance in Venturia inaequalis (Cooke) Wint.** Madras. Dr D Lalithakumari.

18. Roy, Suchismita. **In vitro propagation of orchids and establishment of seedlings under natural conditions.** Gauhati. Dr C M Sarma, Prof, Department of Botany, Guahati University, Guwahati.

19. Saheed, S. **Studies on the biochemical responses of some selected perennials to coal-smoke pollution.** AMU. Prof A K M Ghouse.

20. Sarada, Kali. **Studies on the occurrence of microflora of four crop plants.** Krishnadevaraya. Prof C G Prakasa Rao, Department of Botany, Sri Krishnadevaraya University, Anantapur.

21. Sewalikar, Govind Yashwantrao. **Aeromycological studies over some crops of Marathwada.** Marathwada. Dr P G Sathe, Head, Department of Botany, Maulana Azad College, Aurangabad.

22. Sharma, Suman Bala. **Productivity studies on submerged macrophytes in relation to physico-chemical characteristics of Lakes Mansar and Saurinsar, Jammu.** Jammu. Dr V K Anand.

23. Tiwari, Pradip Kumar. **Studies on seed biology and regeneration of certain forest tree species of Central India.** HS Gour. Dr S P Bajpai, Department of Botany, Dr Harisingh Gour Vishwavidyalaya, Sagar.

Agriculture

1. Bhupinder Singh. **Response of gobhi sarson, Brassica napus + toria to N, P, FYM application and their residual effect on maize.** HP Krishi. Dr H L Sharma, Department of Agronomy, Himachal Pradesh Krishi Vishwavidyalaya, Palampur.

2. Chandel, Suneel Kumar. **Studies on combining ability in relation to genetic divergence in Cucumber, Cucumis sativus.** YS Parmar. Dr R S Rattan, Horticulture Research Station, Kandaghat, Distt Solan.

3. Deodar Singh. **Kinetics of P and S transformations and their availability in a fly ash treated soil.** PAU.

4. Nagendra Rao, Teki. **Studies on the effect of different sources of sulphur on the growth and development, nutrient uptake and quality parameters in young tea, Camellia sinensis (L) O-Kuntze cv.** Kangra Asha in an acid soil of Himachal Pradesh. HP Krishi. Dr P K Sharma, Department of Soil Science, College of Agriculture, Palampur.

5. Rajanna, K L. **Genetic aspects of short term divergent selection for pupal weight in the silkworm, Bombyx mori L.** Bangalore. Dr H P Puttaraju, Department of Sericulture, Bangalore University, Bangalore.

6. Sharma, Prem Lal. **Effect of chitin synthesis inhibitors and plant extracts on reproduction in Heliothis armigera**

Hub. (Lepidoptera: Noctuidae). YS Parmar. Dr Chander Sheikher, Department of Entomology, College of Horticulture, Nauni.

Zoology

1. Apte, Pradeep Vasant. **Studies on semen analysis and semen processing for assisted reproduction.** Devi Ahilya. Dr N K Dhakar, Department of Zoology, Govt Girls Postgraduate College, Indore.

2. Chaudhari, Ravindra Deoram. **Alterations in some physiological processes in the terrestrial snail, Cerastus moussonianus due to monocrotophos intoxication.** Marathwada. Dr A R Kulkarni, Reader, Department of Zoology, Dr Babasaheb Ambedkar Marathwada University, Aurangabad.

3. Das, Ella. **Combined effect of cisplatin with vitamin C and E in the oesophageal region of white rat pre-exposed to known carcinogen.** Gauhati.

4. Duara, Hitendra. **The food and feeding habits of three Indian major carps from the Brahmaputra drainages of Assam.** Gauhai. Dr S C Dey.

5. Ghosh, Baidyanath. **Morphological and biochemical studies infecting siluroid fishes of Durgapur Industrial Belt.** Burdwan. Dr G Majumdar, Prof, Department of Zoology, University of Burdwan, Burdwan.

6. Josephine, J. **Studies on the impact of tannery effluents on earth worms.** Madras. Dr K S Ananthasubramanian.

7. Kant, Poonam A. **Studies on the opioidergic regulation of luteinizing hormone secretion and testicular steroidogenesis in the male albino rat.** Delhi.

8. Khan, I R. **Comparative study of the effects of food quality on food and water utilization budgets in silkworm, Philosamia ricini and Bombyx mori L.** Bangalore. Dr M R Delvi, Reader, Department of Zoology, Bangalore University, Bangalore.

9. *Kubde, Yogeshwar Tukaram.* ***Studies on the pituitary of some Indian Bats.*** Nagpur. Dr M M Gadegone, Department of Zoology, Institute of Science, Nagpur.

10. Mahanta, Joysree Goswami. **Role of habitat calcium in functional physiology of pigment migration of Rana tigrina and its significance in dermatological response.** Gauhati. Dr T C Deka, Prof, Department of Zoology, Gauhati University, Guwahati.

11. Md Jamal Ahmad. **Taxonomy of the Family Petromalidae (Hymenoptera).** AMU.

12. Medhi, Aditi. **A study on some aspects of ecobiology and fishery of Notopterus chitala Hamilton.** Gauhati. Dr A Dutta.

13. Nair, Lathika. **Characterization of malaria parasites, in vitro selection of antifowl resistance and its detection by polymerase chain reaction.** Delhi.

14. Raval, Ami Pravinkant. **Influences of estrous cyclicity and short-term effects of ovariectomy and subsequent hormone replacement on certain metabolic patterns of submandibular salivary glands of rat, Rattus norvegicus albinus.** Baroda.

15. Sarma, Jamuna. **A study on the effects of unsaturated fat diet on male albino rat.** Gauhati. Dr (Mrs) A Borkotoki.

16. Walia, Archana. **A study on the characteristics, leaching and toxicity of fly ash from I P Thermal Power Station, Delhi and impact assessment of its disposal on the limnology of River yamuna.** Delhi.

17. Zeya, Shahid Bin. **A revision of the Indian species of Gonatocerus nees (Hymenoptera: Chalcidoidea: Mymaridae).** AMU. Dr M Hayat.

Medical Sciences

1. Gupta, Rajesh Kumar. **Some of the pharmacodynamic effects of calcium channel blockers and dopamine antagonists.** Nagpur. Dr M L Sharma, Department of Pharmacology, M G Institute of Medical Sciences, Sewagram.

Veterinary Sciences

1. Balakrishnan, P P. **Studies on certain factors affecting the in vitro maturation of follicular oocytes in sheep.** TN Vet.

2. Gupta, Madhurendu Kumar. **Study of cypermethrin intoxication in goats with special reference to immunopathology.** Birsa Agrl.

3. Narayana Bhat, M. **Disease profile in wild herbivores.** TN Vet.

4. Omar, Abdul Aziz Shaik. **Studies on serum levels of gamma globulins immuno-coagglutinin and heterophilic agglutinins in sheep.** Marathwada Agrl. Dr M B Gujar, Head, Department of Microbiology, College of Veterinary and Animal Sciences, Parbhani.

5. Saseendran, P C. **Monitoring and managing the musk in asian elephants, Elephaso maximum.** TN Vet.

6. Tank, Pradulchandra Hirjibhai. **Studies on fluorescence dye technique for prediction of small intestinal viability in dogs.** TN Vet.

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CURRENT DOCUMENTATION IN EDUCATION

A list of select articles culled from periodicals received in the AIU Library during June 1995

EDUCATIONAL PHILOSOPHY

Iheoma, Eugene O. (1995). Rousseau's views on teaching. **New Frontiers in Edn** 25(1), 1-14.

Jha, Narmadeshwar. (1994). Rabindranath Tagore (1861-1941). **Prospects** 24(3-4), 603-19.

Vedantha Chary, K. (1995). Education as a link between logic and reasoning. **Progressive Ednl Herald** 9(3), 20-4.

EDUCATIONAL PSYCHOLOGY

Hartman, David E and Schmidt, Sandra L. (1995). Understanding student/alumni satisfaction from a consumer's perspective : The effects of institutional performance and program outcomes. **Research in Hr Edn** 36(2), 197-217.

Nand Kishor. (1995). The effect of implicit theories on raters' inference in performance judgment : Consequences for the validity of student ratings of instruction. **Research in Hr Edn** 36(2), 177-95.

Watkins, Karen E and Shindell, Tom J. (1994). Learning and transforming through action science. **New Directions for Adult and Continuing Edn** 63, 43-55.

EDUCATIONAL SOCIOLOGY

Shivanna, K T. (1993). Sociology of professions. **J of Edn and Social Change** 7(2-3), 68-79.

EDUCATIONAL POLICY & PLANNING

Bernt, Jan fridthjof. (1994). Universities, colleges and others : Diversity of structures for higher education - Report on the multilateral workshop. **Hr Edn in Europe** 19(4), 109-20.

Hills, Graham. (1994). Diversity in higher education : A United Kingdom perspective. **Hr Edn in Europe** 19(4), 69-75.

WOMEN'S STUDIES

Cato, Dennis. (1994). Is there a feminist pedagogy? **McGill J of Edn** 29(3), 325-40.

Pillai, J K. (1995). Women in higher education and employment in India and USA : Some selected statistics. **New Frontiers in Edn** 25(1), 52-88.

EDUCATIONAL ADMINISTRATION

Eriksen, Scott D. (1995). TQM and the transformation from an elite to a mass system of higher education in the UK. **Quality Assurance in Edn** 3(1), 14-29.

Lewis, Phyllis H and others. (1994). Staff training and development programs. **New Directions for Hr Edn** 22(3), 55-71.

CURRICULUM

Dobbs, Stephen Mark. (1994-95). Integrating science and the arts in the classroom. **College Board Rev** 174, 14-21.

Elton, Lewis. (1995). Enterprise in higher education : Issues of evaluation. **Hr Edn Q** 49(2), 146-61.

Gautama, Sumitra M. (1995). Dimensions of dance education. **Experiments in Edn** 23(4), 75-7.

TEACHERS & TEACHING

Salvio, Paula M. (1994). What can a body know? : Refiguring pedagogic intention into teacher education. **J of Teacher Edn** 45(1), 53-61.

EDUCATIONAL TECHNOLOGY

Aiken, Bob and others (1995). Report from a committee or hope. **Change** 27(2), 48-52.

Ehrmann, Stephen C. (1995). Asking the right questions : What does research tell us about technology and higher learning. **Change** 27(2), 20-7.

Gilbert, Steve. (1995). An 'online' experience : Discussion group debates why faculty use or resist technology. **Change** 27(2), 28-9.

Sahoo, Namita and goel, D R. (1995). Effectiveness of CWCR in different institutions through different modes. **J of Research in Ednl Media** 2(2), 5-14.

EDUCATIONAL EVALUATION

Fry, Heather. (1995). Quality judgements and quality improvement. **Hr Edn Q** 49(1), 59-77.

Straw, Christine and Kaye, Mike. (1995). Measuring comparative value added : A modified methodology **Hr Edn Rev** 27(2), 50-68.

Yorke, Mantz. (1995). Self scrutiny of quality in higher education- A questionnaire **Quality Assurance in Edn** 3(1), 10-3.

ECONOMICS OF EDUCATION

Djangmah, Jerome S. (1995). Funding of postgraduate training and research in African Universities. **Hr Edn Policy** 8(1), 30-2.

Dundar, Halil and Lewis, Darrell R. (1995). Departmental productivity in American Universities : Economics of scale and scope. **Eco of Edn Rev** 14(2), 119-44.

Liverpool, L S O and Opara, E I. (1995). Reflections on a model for recurrent budget estimates and fund allocations. **Hr Edn Policy** 8(1), 24-9.

McCarthy, Peter and Humphrey, Robin. (1995). Debt : The reality of student life. **Hr Edn Q** 49(1), 78-86.

VOCATIONAL EDUCATION

Busby, Jacqueline and Graham, Robert J. (1994). Reconstructing the vocational-liberal studies controversy. **McGill J of Edn** 29(3), 295-307.

Greinert, Wolf-Dietrich. (1994). Basic types of vocational qualification : The market model-the school model - the dual system. **Edn** 49/50, 61-91.

Gugnani, Hans R. (1994). Structures of training for work or employment. **Edn** 49/50, 9-16.

McKenzie, Peter. (1995). Education and training : Still distinguishable? **J of Vocational Edn & Training** 47(1), 35-49.

Tizard, Jenny. (1995) Problems of integrating core skills development with vocational learning : A case study in engineering. **J of Vocational Edn & Training** 47(1), 87-97.

Velde, Christine and Hopkins, Charles. (1994). Reporting trainee competence : What, and how much do employers need to know? **Vocational Aspect of Edn** 46(3), 257-71.

ADULT EDUCATION

Brockett, Ralph G. (1994). Resistance to self-direction in adult learning : Myths and misunderstandings. **New Directions for Adult and Continuing Edn** 64, 5-12.

COMPARATIVE EDUCATION & AREA STUDIES

Holenda, Jiri. (1994). Higher education reform in the Czech Republic. **Hr Edn in Europe** 19(4), 94-9.

Prokopchuk, Alexander. (1994). Reforming the Russian higher education system. **Hr Edn in Europe** 19(4), 31-6.

Small, James M (1995). Reform in higher education in Canada. **Hr Edn Q** 49(2). 113-27.

Verstegen, Deborah A. (1994). The American education reform movement. **J of Ednl Plann & Admn** 8(3), 281-95.

INSTITUTIONAL PROFILE

Mohany, David. (1995). The rise of an Australian multisectoral university : Swinburne University of Technology. **Hr Edn Rev** 27(2), 29-49.

UNIVERSITY OF DELHI
Advt. No. Estab. IV/95/143

In supersession to the advertisement No. MC/Estab./2/11/94-IV given by the University College of Medical Sciences, applications are invited on the prescribed form for the post of **PRINCIPAL, UNIVERSITY COLLEGE OF MEDICAL SCIENCES, DILSHAD GARDEN, DELHI - 110 095**, in the pay scale of Rs. 6300-200-7300 plus NPA of Rs. 1,000/- p.m. DA, CCA, HRA as admissible under the rules of the University from time to time.

Qualification : Essential :
Should possess the medical qualifications such as MD/MS/MRCP/FRCP/FRCS/MAMS/MNAMS with minimum of 10 years teaching experience as Professor/Associate Professor/Reader in a Medical College out of which at least five years should be as Professor in a Department.
Application Form and other details regarding qualifications etc. can be obtained from Establishment Branch-IV (Room No. 205), New Administrative Block, University of Delhi, Delhi - 110 007 between 10 a.m. to 5 p.m. on all working days either personally or by sending a self-addressed postage stamped envelope worth Rs. 8/- (size 13 cm x 28 cm).
Note: 1. It will be open to the University to consider names of suitable candidates, who may not have applied.
2. Canvassing in any form by or on behalf of candidates will disqualify the candidate.
3. Candidates from outside Delhi when called for interview will be paid to and fro single second class rail fare.
4. Those who had applied earlier in response to UCMS advt. No. MC/ESTAB/2/11/94-IV in September/October, 1994 need not apply afresh but they will be considered as per qualification given above.
5. Completed applications must reach the Registrar, University of Delhi, Delhi - 110 007 latest by **31.7.1995.**

Prof. S.K. Wasan
REGISTRAR

UNIVERSITY COLLEGE OF MEDICAL SCIENCES
(UNIVERSITY OF DELHI)
Delhi - 110 095

Ref. advt. No. MC/ESTAB/2/11/94-IV

The qualification for the post of PRINCIPAL stands revised as per University advertisement No. Estab. IV/95/143 dated 5th July, 1995. All those who applied earlier will be considered as per the University advertisement mentioned above.

DEPUTY REGISTRAR

CLASSIFIED ADVERTISEMENTS

DEMPO CHARITIES TRUST

DEMPO HOUSE, CAMPAL,
PANAJI, GOA-403 001

Applications are invited for the post of
PRINCIPAL
OF
SRINIVASSA SINAI DEMPO
COLLEGE OF
COMMERCE & ECONOMICS
ALTINHO, PANAJI, GOA

Minimum Requirements :

Minimum Ten years of approved teaching experience as a **Lecturer** of Undergraduate/Post-graduate level.

Scale of Pay : Rs. 3700-125-4950-150-5700 Plus admissible allowances as per Goa Government rules.

Candidates having Ph.D. with at least five years regular service as Principal and candidates having M.Phil. degree, with at least eight years regular service as Principal, will be considered for the scale of pay of Rs. 4500-150-5700-200-7300.

Application should contain the information on the following points: Full name, Date of birth, Designation of the post held, Academic Qualifications, Teaching and Administrative experience, list of papers written/read in the Seminars/Conferences, etc.

Application alongwith a) Copies of Statements of Marks secured at i) S.S.C., ii) Intermediate/H.S.S.C.E., iii) B.Com/B.A., iv) M.Com./M.A., v) Any higher degree, b) Certified Xerox copy of approval granted by the University at the time of appointment in the affiliated colleges. c) Experience Certificate should be sent through proper channel **within 20 days** of publication of this advertisement on above address of the Trust.

Dated : June 30, 1995 TRUSTEE

CARMEL COLLEGE OF ARTS, SCIENCE AND COMMERCE FOR WOMEN

NUVEM, SALCETE-GOA. 403 604

Applications with full bio-data are invited for the following post so as to reach the Principal **within 15 days** from the date of publication of this advertisement for the year 1995-96.

Applications must be accompanied by certified copies of marksheets of all the examinations from SSC onwards. Those already employed, shall forward their applications through proper channel and shall account for breaks if any in their academic career.

CATEGORY OF POST : OPEN

Full-time lecturer in Commerce - 1 post.
(only if the workload warrants.)
Lecturer in Economics on lecture basis - 1 post.

QUALIFICATIONS

A Master's degree of a recognised University in the relevant subject with eight/six papers and at least 55% of marks or its equivalent grade and good academic record.

Candidates applying for Lecturer's post must have passed the Eligibility test for Lectureship conducted by the UGC, CSIR or similar test accredited by the UGC. However, if such candidates are not available or found suitable, general category candidates will be appointed on temporary basis and the appointment will not be confirmed till the candidates passes the National Eligibility Test.

SCALE OF PAY : Rs. 2200-75-2800-100-4000 plus admissible allowances as per rules.

TERMS AND CONDITIONS of service are those laid down by the Goa University/Directorate of Education, Goa, and other competent Authorities.

Sr. Margaret Angela A.C.
PRINCIPAL

ICRISAT

Manager-elect
Library and Documentation Services

The International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) is an international research institute with its headquarters near Hyderabad, Andhra Pradesh.

An experienced Library and Documentation Services Manager is required to succeed the present manager who retires early in 1996. The successful candidate will manage the Library, the development of improved library management systems, the continued enhancement of established computerised bibliographic database services, the development of electronic publishing capabilities, and the preparation of computer-based expert diagnostic systems.

She or he will probably have a degree in agriculture, and a masters degree in information science, with the following experience and aptitude profile:

- 10 years experience in leading edge information management including 5 or more years in a management capacity;
- familiarity with relational and other database management systems, and with bibliographic search and SDI services;
- experience of CD-ROM and electronic publishing technologies, and ideally with expert systems;
- an excellent communicator (in English) in both formal and informal contexts.

A competitive package of salary and benefits will be provided. The position is on contract for 3 years, and is renewable, if mutually desired. Please submit applications to the Assistant Personnel Manager, ICRISAT Asia Center, Patancheru 502 324, Andhra Pradesh, within fifteen days of the date of this advertisement.

ICRISAT is an equal opportunity employer 15–95

BUNDELKHAND INSTITUTE OF ENGINEERING & TECHNOLOGY

JHANSI 284 001 (U.P.)

ADVERTISEMENT NO. : 2/95
(TEACHING & ADMINISTRATIVE STAFF)

Separate applications are invited for the undermentioned posts on prescribed application forms obtainable from the Institute on payment of a sum of Rs. 20.00 in cash towards its cost. These could also be obtained on request through post by sending (i) a self addressed envelope duly affixed with stamps worth Rs. 9.00 and (ii) an IPO/Bank Draft in favour of Director, Bundelkhand Institute of Engineering & Technology, Jhansi.

The application duly completed in all respects should be submitted along with the application fee of Rs. 20.00 (Rs. 5.00 for SC/ST candidates) by an IPO/Bank Draft in favour of the Director, Bundelkhand Institute of Engineering & Technology, Jhansi, so as to reach the Director, Bundelkhand Institute of Engineering & Technology, Jhansi **on or before 16th Aug., 1995.**

(A) - **TEACHING STAFF :**

S N.	DEPARTMENT	PROFESSOR (Total Cat.)	READER (Total Cat.)	LECTURER (Total Cat.)
1.	Computer Sc. & Engg.	1 (SC)	2 (UR,OBC)	-
2.	Mechanical Engg.	-	2 (UR,SC)	1 (UR)
3.	Elect. & Inst. Engg.	1 (OBC)	3 (UR, SC, OBC)	3 (UR, SC, OBC)
4.	Civil Engg.	1 (UR)	1 (UR)	1(SC)

PAY SCALE : Professor Rs. 4500-7300; Reader Rs. 3700-5700;
Lecturer Rs. 2200-4000

(B) - **ADMINISTRATIVE STAFF :**

S.N.	NAME OF POST	NO. OF VACANCIES	PAY SCALE
1.	Registrar	1 (UR)	3000-4500
2.	Librarian	1 (UR)	2350-4300

Categories : UR-Un Reserved; SC-Schedule Caste; OBC-Other Backward Class.

ESSENTIAL/DESIRABLE QUALIFICATIONS AND EXPERIENCE :

PROFESSOR :

(i) Ph.D with first class degree at Bachelor's or Master's level in appropriate branch of Engg. & Technology

(ii) Ten years experience in Teaching/Industry/Research, out of which at least five years must be at the level of Reader or equivalent.

NOTE : Candidates from Industry/Professional work of high standard, recognised at National/International level equivalent to Doctorate are also eligible.

READER :

(i) First Class Degree at both Bachelor's and Master's level in appropriate branch of Engineering/Technology.

(ii) Five years experience in Teaching/Industry/Research at the appropriate level.

NOTE : Candidates from Industry/Profession with recognised professional work equivalent to Master's Degree in Engineering/Technology are also eligible.

DESIRABLE : Ph.D Degree in appropriate branch of Engineering/Technology.

LECTURER :

(i) First Class Bachelor's Degree in appropriate branch of Engineering/Technology.

DESIRABLE : M.E./M.Tech. in appropriate branch of Engineering/Technology.

Fields of Specialization :

1. ELECTRONICS & INSTRUMENTATION ENGINEERING :
   PROFESSOR READER & LECTURER: Electronics/Instrumentation/Digital System/Communication Engg
2. COMPUTER SCIENCE & ENGINEERING :
   PROFESSOR & READER : Programming Languages/Artificial Intelligence/Image Processing/Parallel Algorithms and Architecture/Computer Net Working/Information System.
3. MECHANICAL ENGINEERING :
   READER & LECTURER : Production/ Industrial/ Thermal/ Design
4. CIVIL ENGINEERING :
   PROFESSOR : Structure/ Soil Mechanics
   READER & LECTURER : Structure/ Soil Mechanics/Environmental Engg/Transportation Engg.

1. **REGISTRAR :**
   First Class or High Second Class Bachelor's Degree of an Indian University with about seven years experience in responsible administrative capacity in an Univ. or a Technical Institution or in any Govt. Deptt. at the Post of Dy. Registrar or equivalent. Good knowledge of Hindi & English.

DESIRABLE :

Degree in Law and/or M B A from a recognised Univ., Experience in accounts in a responsible post.

2. **LIBRARIAN :**
   A Post Graduate Degree in Library Science with five years experience as Dy. Librarian in any Engg. Institution or any Prestigious Institution/University.

NOTE :

1. There shall be no claim for any change in the nature and/or number of posts advertised. The number of posts advertised may be increased or decreased or withdrawn as per requirement of the Institute.
2. The qualification and experience prescribed above are the minimum and mere possession of the same may not entitle any candidate to be called for interview. A Screening Board of the Institute shall scrutinise all applications for recommending the names of candidates to be called for interview. No representations from those not being recommended and not called for the interview, will therefore, be entertained at any stage.
3. The applicants in employment must get their application forwarded through proper channel. In case any applicant anticipates delay in transit of his application through proper channel, he must send an advance copy of his application so as to reach before the closing date i.e. **16th, August, 1995.**
4. All posts carry dearness and other allowances as per the Institute rules.

Dr R.C. Yadav
DIRECTOR

Zantye Brothers Educational Foundation's
NARAYAN ZANTYE COLLEGE OF COMMERCE
BICHOLIM, GOA - 403 504.

Applications, with full bio-data including copies of statement of marks, beginning with S.S.C. exam, are invited for the following posts of Lecturers and a Librarian so as to reach the undersigned **within twenty days** from the date of publication of this advertisement:

1. English - 1 post
2. Geography - 1 post
3. Economics - 1 post
4. Mathematics - 1 post
5. Accountancy - 1 post
6. Commerce - 1 post
7. Computer Awareness - 1 post
8. Business Law - 1 post
9. Advertising & Salesmanship - 1 post

Librarian

Essential Qualifications

For Lecturers: Master's degree in the relevant subject with atleast 55% marks or equivalent grade and good academic record (i.e. atleast 50% marks at Graduation with the same subject as at Post-Graduation or an average of 50% marks at the three examinations of S.S.C., H.S.S.C. and Graduation combined).

Candidates should have cleared the Eligibility Test for Lecturers conducted by U.G.C., C.S.I.R. or similar Tests for Lecturers accredited by U.G.C. In case such candidates are not available candidates satisfying other qualifications will be appointed on purely temporary basis.

Desirable Qualifications

For Lecturers: Ph.D. or M.Phil. and a regular student at Graduation or Post-Graduation.

Essential Qualifications

For Librarian: Master's degree with atleast 55% marks or equivalent grade and good academic record and a degree in Library Science.

Scale of Pay: Scales of pay, and terms and conditions of service are as laid down by the Goa University, Directorate of Education, Govt. of Goa, and other competent authorities.

Persons already in service must apply through proper channel. Any break in academic career should be accounted for.

POSTS WILL BE FILLED PROVIDED WORK-LOAD WARRANTS.

AG. PRINCIPAL

N.S.S. College's Central Committee
Perunnai P.O., Changanacherry-2,
Kottayam Dist., Kerala.

WANTED

Lecturers in the following subjects for N.S.S. Colleges under Mahatma Gandhi University, Kerala State.

1. Computer Applications
2. Electronics
3. Commerce

Qualification

1) For Lecturer in Computer Application - M.Tech. or M.C.A.
2) For Lecturer in Electronics - M.Tech. or M.Sc. in Electronics
3) For Lecturer in Commerce - M.Com.

Applicants should have passed the Master's Degree in the subject with not less than 55% marks. They should also pass the eligibility test for Lecturership conducted by U.G.C. or CSIR or have qualified from exemption from the test as per U.G.C. norms.

Age: As applicable for direct recruitment in Government Colleges in Kerala.

Application forms can be had from the office of "The Chief Accounts & Audit Officer, N.S.S. Head Office, Perunnai, Changanacherry-2, Kerala" on payment of Rs. 35/- in cash or Rs. 37/- if required by

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CAMBRIDGE NEHRU SCHOLARSHIPS
October 1996

The Nehru Trust for Cambridge University and the Jawaharlal Nehru Memorial Trust, in collaboration with the **Cambridge Commonwealth Trust**, offers up to ten scholarship annually (eight Cambridge Scholarships and two Jawaharlal Nehru Memorial Fund Cambridge Scholarship*) to Indian students under the age of 26 (on 1 October 1996) who have a First Class Honours Degree or its equivalent, and who intend to pursue a course of research at Cambridge leading to the degree of PhD. Candidate appearing for their first degree examination in 1996 are not eligible for the scholarships Those who have in addition a First Class Master's Degree or its equivalent may be given preference. Applicants must be successful in winning an ORS award which pays the difference between the home and overseas rate of the University Composition Fee. ORS application forms will be sent to eligible candidates in due course.

The scholarships are tenable for a period not exceeding three years and will cover the University Composition Fee at the home rate, approved College Fees, maintenance allowance sufficient for a single student and a contribution towards a return airfare by the cheapest available route.

Further details and Preliminary Application Forms can be obtained before **19 AUGUST 1995** from :

The Joint Secretary
Nehru Trust for Cambridge University,
Teen Murti House, New Delhi-110 011

Applicants should give full details of their academic qualifications and state that they wish to be considered for a Cambridge Nehru Scholarship. Preliminary Application Forms must be returned to the above address **NO LATER THAN 9 SEPTEMBER 1995.**

The selection of Cambridge Nehru Scholars and the Jawaharlal Nehru Memorial Fund Cambridge Scholar will be made in June 1996.

** Preference for the Jawaharlal Nehru Memorial Fund Cambridge Scholarship may be given to candidates in the broad fields of Science Policy, Technology and Global Restructuring, Philosophy and History of Science, Comparative Studies in Religion and Culture, International Relations and Constitutional Studies, Indian History, Civilisation and Culture, Interface of Social Change and Economic Development, Environmental Ecology and Sustainable Development.*

post. Applications duly filled up should reach the undersigned **within one month** from the date of publication of this notification.

Fifty percent of the vacancies will be filled up from the candidates of Nair Community.

SECRETARY

SAURASHTRA UNIVERSITY

Applications in the prescribed forms are invited from the eligible candidates for the following teaching posts :

1. **PROFESSOR** : Gujarati - 01, History - 01, Sociology - 01
2. **READER** : Gujarati - 01, English - 01, Economics - 01, Law - 01, Electronics - 01, Library and Information Science - 01, Academic staff College - 1.
3. **LECTURER** : Gujarati - 01, Bio-Science - 01, Mathematics - 02, Sanskrit - 01 (S.T.).

Application forms can be had from the Registrar, Saurashtra University, University Campus, University Road, Rajkot - 360 005 on sending a self addressed stamped envelope (worth Rs. 10/-) of 30 x 20 cms. size.

Applications duly filled in **ELEVEN COPIES** should reach this office on or before **08-08-1995** along with **A/C PAYEE BANK DRAFT** of **Rs. 100/-** (NON REFUNDABLE) for each of the posts, drawn in favour of "REGISTRAR, SAURASHTRA UNIVERSITY, RAJKOT".

NOTE: Details of Pay Scales, Qualifications and Specialization will be sent alongwith blank application forms.

REGISTRAR

THE CORPORATE EDUCATIONAL AGENCY OF COLLEGES

DIOCESE OF KOTTAYAM
KOTTAYAM-686 001

WANTED

Applications are invited for the post of lecturers in the vacancies which are likely to arise in the following departments during this academic year.

B.C.M. College, Kottayam :

Botany - Open/Community Quota
English- Open/Community Quota

St. Stephen's College, Uzhavoor :

Chemistry - Open Quota
History - Open Quota

Age & Qualification as prescribed by U.G.C., Mahatma Gandhi University & Government of Kerala.

Apply **within one month** from the date of publication of this notification. Application forms are available from B.C.M. College office *on payment of* Rs. 75/- (Rs. 85/-) by M.O.

MANAGER

NORTH GUJARAT UNIVERSITY
PATAN-384 265 (N.G.)

Applications are invited in the prescribed form alongwith details available from this office *between 11.00 a.m. to 2.30 p.m. on payment of Rs. 50/- in cash or by a crossed* I.P.O. in favour of "Registrar, North Gujarat University, Patan" for the following posts in the various Post-Graduates departments of the University so as to reach the undersigned on or before **11.8.1995.**

Sr. No.	Post and Pay Scale	Subject
1.	Professor (One post) (Reserved for S.T. Candidate)	Mathematics
2.	Reader (Two posts) (Reserved , one each for S.T. and S.C. candidate)	English - 1 Mathematics-1
3.	Lecturer (One post) (Reserved for S.T. candidate)	Prakrit

Pay Scale:

Professor : 4500-7300
Reader : 3700-5700
Lecturer : 2200-4000

Other allowances will be given as per the University rules.

Other conditions:-

1. Knowledge of Sanskrit preferred for the post of Lecturer in Prakrit and knowledge of Gujarati is essential for all the posts.
2. Candidates called for the interview will have to attend it at their own expenses.
3. Those who applied earlier may apply again.
4. Number of post(s) may be increased or decreased without notice.
5. Number of posts in reserved category may be increased or decreased without notice. If candidates of Reserved Category are not available for the above post, other applicants may be considered for recruitment.
6. The University reserves the right not to fill up post(s) advertised.
7. Application received on plain paper or after last date shall not be entertained.

Date : 6/7/1995
Place : PATAN

B.N. Shah
REGISTRAR

INDIAN COUNCIL OF MEDICAL RESEARCH

Nominations/applications are invited from distinguished retiring Scientists engaged in research in the field of biomedicine for consideration for appointment as Emeritus Medical Scientist under the Council. Full particulars can be obtained from the office of the Director General, (Personnel Section) Indian Council of Medical Research, **Post Box No. 4911, New Delhi-110029.** Scientists who have retired or are going to retire upto **31st March, 1996** may apply for the appointment as Emeritus Medical Scientist under the Council.

Last date for receipt of application is **30th Sept., 1995.**

DAYALBAGH EDUCATIONAL INSTITUTE

(DEEMED UNIVERSITY)

DAYALBAGH, AGRA-282 005

Applications are invited in the prescribed form for the post of **Principal, DEI Technical College** in the pay scale of Rs. 3000-4750.

Note : 1. Prescribed applications form alongwith details of qualifications can be obtained from the office of the Registrar of the Institute on payment of Rs. 15/- by sending a self addressed and stamped envelope of size 22 x 10 cms with postal stamps of Rs. 2/- for ordinary post and Rs. 8/- for registered post.

2. Applications complete in all respects alongwith enclosures and registration fees of Rs. 25/- must reach the Registrar latest by 14-8-1995.

3. All payments must be made either in cash at counter or by bank draft in favour of **Dayalbagh Educational Institute** payable at Agra.

4. Superanuated persons are not eligible for employment.

5. Candidates are called for interview on the recommendations of the Screening Committee of the Institute and as such all applicants may not be called for interview.

3 July, 1995 REGISTRAR

UNIVERSITY OF KERALA

THIRUVANANTHAPURAM

No. PR1/626/20/95 Dated. 10.7.1995

NOTIFICATION

Sub. Appointment of Professor in the Dept. of Communication & Journalism

With reference to this Office Notification No. PR1/626/11/95 (Ad. H. 182/94) dated 16.5.1995, it is notified that the last date for receipt of applications for the post of Professor (Open Quota) in the University Dept. of Communication & Journalism is extended upto **31st July, 1995**.

Requests for application form, accompanied by D.D. for Rs. 200/- drawn on a nationalised bank in favour of the Finance Officer, University of Kerala, payable at Thiruvananthapuram, should be addressed to Deputy Registrar (Admn. III), University of Kerala, Thiruvananthapuram-695 034.

SPECIAL OFFICER-IN-CHARGE
OF REGISTRAR

INSTITUTE OF SOCIAL SCIENCES

AGRA UNIVERSITY

ADMISSION NOTICE

Applications are invited on prescribed application forms for admission to the following Courses of the Institute. Those whose results are not yet declared can apply Provisionally:

(a) M.A. (Sociology), Duration 2 years
Eligibility: Bachelor's degree with at least 45% Marks.

(b) M.Phil (Sociology) Duration 1 year
Eligibility: Master degree in Sociology with at least 60% marks.

(c) Master of Social Work, Duration 2 years
Eligibility: Bachelor's degree with 50% marks & for S.C., S.T.& B.C. 45% marks. Admission shall be on the basis of Admission Test & Interview.

(d) Post-graduate Diploma in Computer Applications.
Duration: 3 Semesters
Eligibility: Bachelor's degree with 45% marks and Mathematics as a subject upto Intermediate. Admission shall be on the basis of Admission Test & Interviews.

(e) Master of Statistics, Duration 2 years
Eligibility: Bachelor's degree with Mathematics Statistics as a paper with 45% marks in total.

(f) M.Phil (Statistics), Duration one year
Eligibility: Master's degree in Statistics with 45% marks.

Request for Application Form which Costs Rs. 60/- by post, and Rs. 50/- if collected in person, may be made to the Director.

Last date : September 9, 1995.

DIRECTOR

INDIAN INSTITUTE OF TECHNOLOGY MADRAS

32nd Convocation

**Scheduled to be held at 10.00 A.M.
or Friday the 28th July 1995**

Shri Madhavrao Scindia
Hon'ble Minister
Human Resource Development, GOI
will be the Chief Guest

All graduands are requested to get in touch with the undersigned immediately. Individual letters have already been mailed.

All Alumni are cordially invited to attend the AGM at CLT on 27th July 1995 at 17.00 hrs.

K Panchalan
DEPUTY REGISTRAR (Academic)

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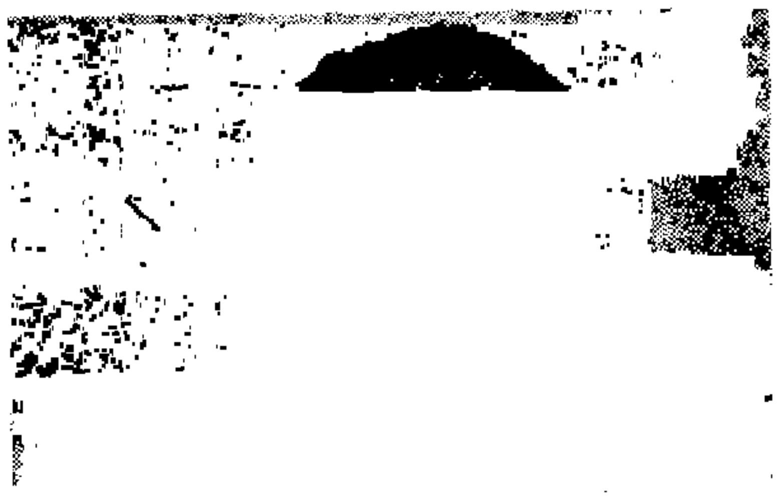

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